

Centre for Rural Development (SLE) Berlin

**SLE DISCUSSION PAPER 02/2016 - EN**

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# Scenario Building for Development Cooperation – Methods Paper

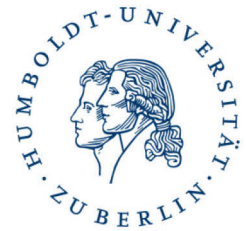
Example of Rural Transformation in Sub-Saharan Africa

Christian Berg, Gabriele Beckmann, Anja Schelchen



August 2016





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Funded by the Federal Ministry for Economic Cooperation and Development

August, 2016





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**Published by:** Centre for Rural Development (SLE)

Humboldt-Universität zu Berlin  
Lebenswissenschaftliche Fakultät  
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## **Printing**

Zerbe Druck & Werbung  
Plankstr. 11  
15537 Grünheide

## **Distribution**

Seminar für Ländliche Entwicklung (SLE)  
Hessische Str. 1-2  
10115 Berlin

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SLE 2016

## **Photos**

Seminar für Ländliche Entwicklung (SLE)

ISSN: 1433-4585  
ISBN: 3-936602-78-6

The SLE Discussion Paper Series facilitates the rapid dissemination of preliminary results drawn from current SLE projects. The idea is to stimulate discussions in the scientific community and among those in the field, and to inform policy-makers and the interested public about SLE and its work.

The Centre for Rural Development (SLE) is affiliated to the Albrecht Daniel Thaer Institute for Agricultural and Horticultural Sciences in the Faculty of Life Sciences at the Humboldt-Universität zu Berlin. Its work focuses on four strands: international cooperation for sustainable development as a post-master degree course, training courses for international specialists in the field of international cooperation, applied research, and consultancy services for universities and organisations.

The objective of the research project “Towards a Socially Inclusive and Environmentally Sustainable Rural Transformation in Africa” is to identify strategies, instruments and measures that will help to forge a more socially inclusive and ecologically sustained rural transformation in sub-Saharan Africa. The project itself is a constitutive component of the ONE WORLD, NO HUNGER Special Initiative financed by the Federal Ministry for Economic Cooperation and Development (BMZ).

The authors are grateful to Anja Kühn, Victoria Luh, Margitta Minah, Erik Engel, Prof. Theo Rauch, Dr. Simone Rettberg, Daniela Richter, Alfons Üllenberg and Dr. Susanne Neubert for their valuable inputs.

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# Abstract

Scenarios project several possible pictures of the future. Unlike forecasts based on trend extrapolation, they do not predict what will happen but tell what could happen within a certain probability space over time. In recent years, scenario building has been used extensively to explore the potential effects of socio-economic and environmental change. The community of scenario building practice uses a variety of techniques, ranging from purely quantitative techniques, i.e. computer simulations, to purely qualitative techniques, such as explorative or normative scenario techniques. A group of hybrid techniques, including cross-impact analysis and the Delphi method, combine quantitative and qualitative elements in the scenario building process.

Rural transformation, understood as a long-term process of change in fundamental features of the way people in rural areas live and act economically, considering their embedding in societal and global dynamics, is a complex phenomenon determined by a variety of interrelated political, economic, demographic, socio-cultural and environmental factors. Hence, building systemic scenarios of rural transformation requires a selection of important factors and the analysis of their mutual interdependencies. Analysing key forces behind identified influencing factors – policies, actors, institutions, regimes – allows deriving strategic recommendations to work towards rural transformation in the desired direction.

In this paper, the methodological approach to develop scenarios of rural transformation in sub-Saharan Africa will be described. On the one hand, this includes a discussion of existing techniques for scenario building, their characteristics and requirements. On the other hand, the paper provides detailed practical guidance on the chosen technique and concludes with an evaluation of its application in the field.

## Key words

rural transformation, scenario building, scenario techniques

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## List of STEPS

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## Abbreviations

|        |  |
|--------|--|
| BMZ    | <i>Bundesministerium für Wirtschaftliche Zusammenarbeit und Entwicklung</i><br>(Federal Ministry for Economic Cooperation and Development) |
| CGIAR  | Consultative Group on International Agricultural Research  |
| FAO    | Food and Agriculture Organization of the United Nations  |
| GAP    | Global Assessment and Prognosis  |
| IFPRI  | International Food Policy Research Institute   |
| IMPACT | International Model for Policy Analysis of Agricultural Commodities and Trade  |
| NGO    | Non-governmental organisation  |
| OECD   | Organisation for Economic Cooperation and Development  |
| SLE    | <i>Seminar für Ländliche Entwicklung</i> (Centre for Rural Development)  |
| SSA    | Sub-Saharan Africa   |

# Preface

As part of the special initiative of the German Federal Ministry of Economic Cooperation and Development (BMZ) “One World, No Hunger”, Germany will carry out substantial expenditures in the coming years for the fight against hunger and malnutrition. ‘**Transformation in Rural Areas**’ is one of the six spheres of action under this initiative. The BMZ assigned the Centre for Rural Development (SLE), Humboldt-Universität zu Berlin with a research and consultation project to identify strategies, instruments and measures for sub-Saharan Africa in order to work towards a socially inclusive and ecologically sustainable rural transformation. At the core of the project, the SLE research team developed future-oriented scenarios of rural transformation processes in three case countries/regions, namely Zambia, Benin, and Ethiopia (arid and semi-arid lands / ASAL region).

The research team defined rural transformation as a long-term process of change in fundamental features of the way people in rural areas live and act economically, considering their embedding in societal and global dynamics.

In the context of the research project, **scenario building** is defined as a **strategy planning procedure** that

- Presents several plausible future paths of rural transformation,
- Assesses the influence of key factors on rural transformation in their complex interactions,
- Shows development pathways from the current trend to the desired future path of rural transformation.

The building of scenarios in stakeholder workshops, which was complemented by desk studies, expert interviews and focus group discussions, provided answers to the following key survey questions:

- Which transformation trends in the rural areas of the case countries/regions have been important in the recent past, and how have these trends affected various societal groups and the environment?
- Which factors determine rural transformation in the case countries/regions, and how do they influence each other?
- Which socially inclusive and ecologically sustainable future pathways in the case countries/regions are imaginable and realistic, and which policies, strategies, institutions and regimes, and instruments and measures do they require?

The answers to these questions, supported by a rapid assessment of existing political and institutional potentials in the case countries/regions, guides recommendations to the BMZ (and donor agencies in general) regarding possible contributions by German Development Cooperation (and other donors) to working towards a more socially inclusive and ecologically sustainable

rural transformation. Furthermore, this work serves as a model on how to build systemic scenarios and how to draw strategies and measures for further action from them.

The purpose of this paper is to provide an overview of applications of scenario building, to compare existing scenario techniques, to explain the methodological choice for the research project on rural transformation, and to describe and evaluate the applied scenario technique. The detailed description of the applied scenario building methodology is meant to guide potential users, including the BMZ, who wish to develop systemic scenarios in the context of development cooperation in general, and of rural transformation in particular.

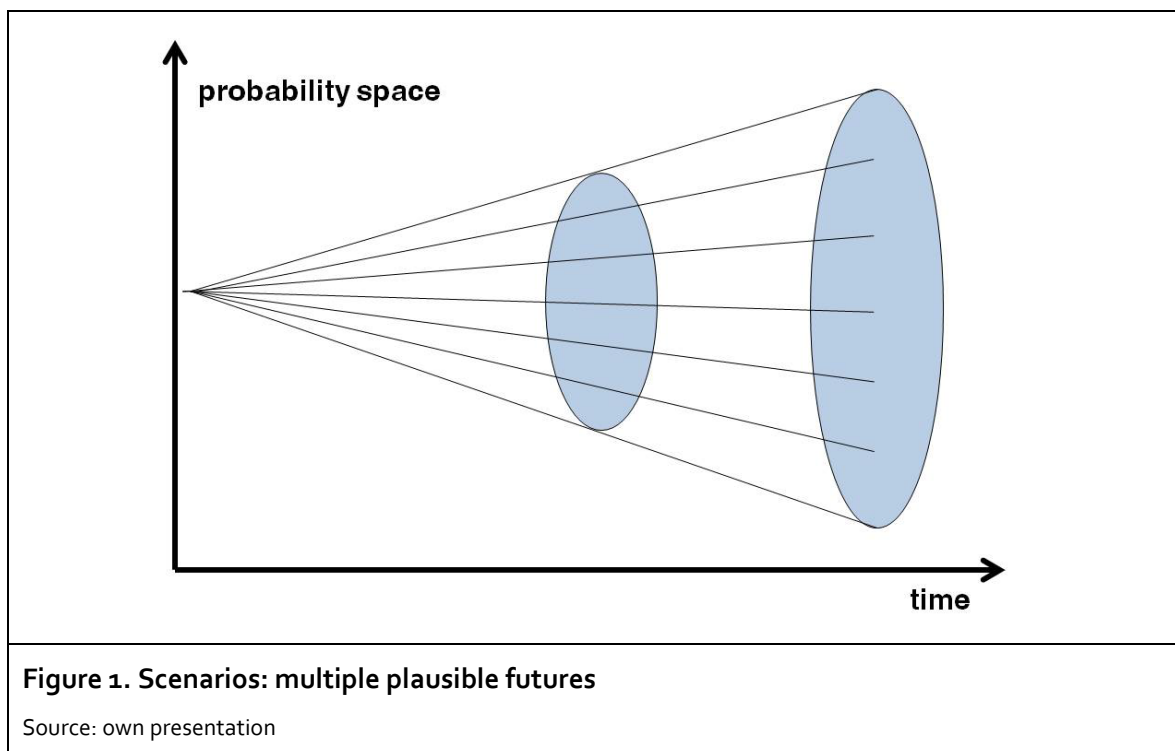


# 1 Scenario Building and Techniques

## 1.1 Definitions

The Encyclopædia Britannica defines **scenario** as “a description of what could possibly happen”. Similarly, Lebel et al. state in their chapter on sub-global scenarios for the United Nations Environment Programme (UNEP 2005: 231) that “a scenario involves thinking about a wide range of futures, including both well-known trends and uncertainties”, and Vervoort et al. conceptualise scenarios in multi-level, multi-stakeholder contexts as “**multiple plausible futures**” (2014: 384).

Scenarios project several possible pictures of the future. Unlike forecasts based on trend extrapolation, they do not predict what will happen but tell what could happen within a certain probability space over time (see Figure 1).



The appropriate time horizon for scenarios depends on the pace of development of the issue considered and the forces behind it. For a longer time horizon (e.g. 30-40 years), it becomes more difficult to reasonably assess what could happen; on the other hand, some crucial processes (such as climate change) are slow and do not manifest themselves within shorter time scales (e.g. 5-10 years). The scenario builder must assess the trade-offs between time horizons when making a choice (see Galopin 2012: 6).

## 1.2 History and examples of scenario building

While thinking about possible futures is probably as old as mankind, systematic scenario building has a history dating back to the Cold War in the 1950s, when it was used for military and political strategy planning. Since the 1970s, companies have been using scenario building for strategic corporate planning (e.g. Shell for coping with the oil crisis), and in 1972 the Club of Rome set a milestone in scenario building by developing economic scenarios on the limits of growth (compare Meinert 2007: 2; Lundsgaarde 2008: gff.) Other famous practical applications of scenario building include the Mont Fleur scenarios for an agreement on future cohabitation in South Africa (1991-92), and the International Panel on Climate Change (IPCC) scenarios on possible implications of climate change since the 1990s (Lundsgaarde 2008: 20). Today, scenario building serves a variety of purposes, including risk assessment and management, decision-making and strategy development, as well as interdisciplinary exchanges and the generation of ideas.

In recent years, scenario building has been used extensively to explore the potential effects of socio-economic and environmental change (see Metzger et al. 2010: 1, Kok et al. 2011: 5). Practical examples from development cooperation include:

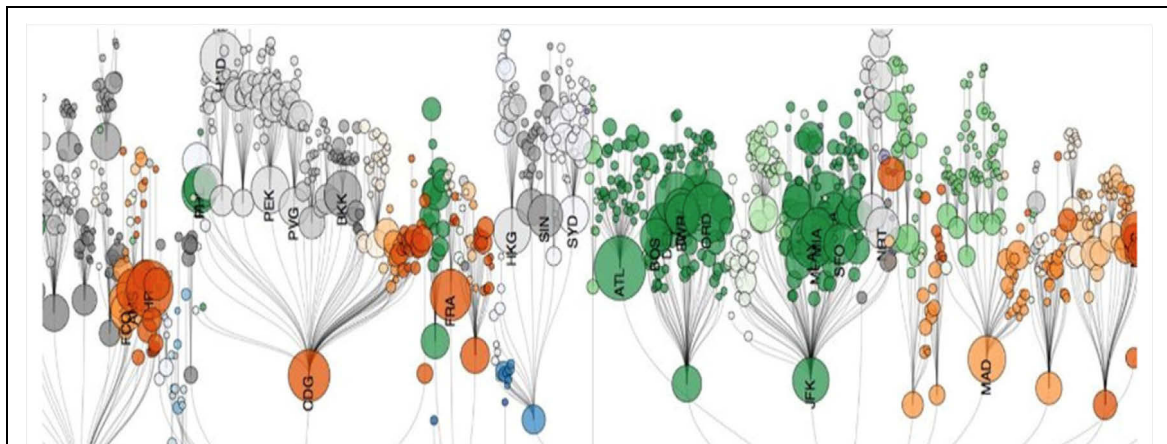
- The Food and Agriculture Organization (FAO) recently conducted scenario building processes focussing on implications of climate change for agricultural developments in Vietnam (2014) and Malawi (2013). The Vietnam case covered time periods from 2013 to 2020 and 2050, respectively. The Malawi case covered a time period from 2012-2040. Stakeholders in the scenario building process were national experts and policy makers from regional ministries and institutes or international institutes.
- The World Energy Council (2013) developed scenarios regarding energy supply and consumption globally up to 2050. Over 60 experts from 28 countries discussed strategies to ensure the provision of sustainable and affordable energy (see World Energy Council 2013: 12-24).
- The World Bank ran a scenario building process in 2012 with a view to outlining prospects for fisheries and aquaculture 2012-2030. The World Bank used the "International Model for Policy Analysis of Agricultural Commodities and Trade" (IMPACT) developed by the International Food Policy Research Institute (IFPRI).

The community of scenario building practice uses a variety of techniques, ranging from purely quantitative techniques, i.e. computer simulations, to purely qualitative techniques, such as explorative or normative scenario techniques. A group of hybrid techniques, including cross-impact (or cross-influence) analysis and the Delphi method, combine quantitative and qualitative elements in the scenario building process. This chapter briefly introduces these techniques and discusses their advantages and disadvantages.

## 1.3 Quantitative techniques

Quantitative scenario building techniques are generally approaches that undertake scenario construction through **computer simulations**. These facilitate the building of scenarios by system

dynamics modelling. System dynamics modelling calculates the interactions and mutual influences between variables that constitute an entire system to predict the behaviour and development of the system over a certain timescale (see Lundsgaarde 2008: 14). Figure 2 outlines the result of a computer simulation based on data on flight movements and passenger numbers showing how the Ebola virus could notionally spread to Europe.



**Figure 2. Ebola outbreak: simulation of worldwide air transportation and relative important risk**

Source: Brockmann, Schaade, Verbeek (2014)

An established quantitative technique of scenario building in the context of food supply and demand is IMPACT (see Lundsgaarde 2008: 17). Developed at the beginning of the 1990s by IFPRI, it is still a major quantitative method for scenario building processes focussing on the linkage between the production of food, food demand, and food security. Initially, the IMPACT tool was developed to provide fact-based guidance for experts dealing with food security, resource conservation and reduction of poverty (see Rosegrant et al. 2012: 1). Recently, the World Bank published a scenario report on fisheries and aquaculture 2012 to 2030 employing IFPRI's IMPACT model to generate projections of global fish supplies and demand (see World Bank 2013). A great advantage of the IMPACT model lies in the fact that it edits data for a wide range of agricultural products, such as cereals, oilseed, fish products, roots, and livestock products (ibid.: 11). Therefore, IMPACT has been employed in a broad sample of regional and international surveys (see Rosegrant et al. 2012: 1). IMPACT also provides a dynamic approach: the IMPACT model looks for global market equilibrium in each period and carries on sequentially over the projected time period. Dynamics are incorporated through trends in the drivers of change for demand and supply (see World Bank 2013: 12).

In a quantitative scenario analysis on water by Alcamo, Henrichs and Rösch (2000: 6f.), the scientists used the Water-Global Assessment and Prognosis (WaterGAP) model 2.0. It consists of two main components: a water use model and a water availability (hydrology) model. Based on quantitative results from the WaterGAP model the scientists developed scenarios of the world water situation in 2025.

Assessing progression quantitatively and building scenarios on the basis of computer simulation results requires a reliable and comprehensive database. Therefore, such scenarios can only be built when long-term empirically observable and measureable data are available. This reduces the case selection enormously. Nevertheless, quantitative scenario analysis instruments facilitate the replicability and iteration of a scenario development process and offer transparency (see Kosow, Gaßner 2008: 76f.).

## 1.4 Hybrid techniques

Apart from exclusively quantitative or qualitative approaches some scenario building techniques show a hybrid character, e.g. cross-impact/cross-influence analysis and the Delphi method.

The main tool used for cross-impact/cross-influence analysis is the **influence matrix**, which shows the “impact of particular factors as drivers of future changes through the attempt to assign a value to the impact that potential drivers have on one another” (see Lundsgaarde 2008: 17f.). There are also more complex methods of cross-impact analysis that show interaction effects between potential factors determining change and resulting events (ibid.: 18). Denkmodell (2006), for example, supported Israeli and Palestinian urban planning groups in an attempt to develop scenarios for a peaceful coexistence of Israelis and Palestinians in Jerusalem through systemic scenario techniques.

The main advantage of an influence matrix is that the researcher estimates on an ordinal scale the strength of a factor’s influence on other factors (see Figure 3). This evaluation of the probability of a hypothesis affords transparency (see Lundsgaarde 2008: 18). On the other hand, as is the case with quantitative techniques in general, the method limits the open-endedness of the scenario building process, since the preparation of the matrix requires assumptions about certain factors which experts are supposed to evaluate (ibid.: 19). The main drawback is that an influence matrix can only be used as an input for scenario building processes and is not suitable to generate a scenario on its own.

|  |                  |          |          |          |          |                 |
|--|------------------|----------|----------|----------|----------|-----------------|
|  |                  | Factor A | Factor B | Factor C | Factor D | Active Sum (AS) |
|  | Factor A         |          | 2        | 1        | 0        | 3               |
|  | Factor B         | 1        |          | 0        | 0        | 1               |
|  | Factor C         | 0        | 1        |          | 1        | 2               |
|  | Factor D         | 1        | 0        | 1        |          | 2               |
|  | Passive Sum (PS) | 2        | 3        | 2        | 1        |                 |
|  | AS x PS          | 6        | 3        | 4        | 2        |                 |

**Figure 3. Influence matrix**  
Source: own presentation

One of the pioneers in the field of **computer-based cross-impact analysis** is Godet whose main contribution was the development of the “Smic-Prob-Expert” software that systematically analyses survey results that show how experts estimate the probabilities of events (see Lundsgaarde 2008: 19). In the first phase, five or six central hypotheses and few complementary hypotheses are developed and processed in a questionnaire and sent to the experts. They have to assess the probability of a certain event occurring in the future and to score this probability from 1-5. Thereafter, the experts have to take into account the conditional probability of other events. With all conditionalities in mind, the experts have to illustrate the level of implicit coherence of their argumentation. The data is analysed and corrected in the second phase “by using the opinion of experts in such a way as to obtain coherent, net results and affecting a probability of each of  $2n$  possible combinations given  $n$  hypotheses. The average of the probabilities is taken into account in order to determine their ranking, and identify the most probable scenarios” (see Godet, Durance 2011: 83).<sup>1</sup> “Smic Prob-Expert” has the advantage that the multiple multiplication of the matrix with itself generates effects of the second and third order. However, this data volume involves high costs. For example, the SMIC method consists of a panel of approximately 30 people that are interrogated by questionnaire. This means that up to  $30 \times 30 = 900$  effects have to be evaluated (see Steinmüller, Schulz-Montag 2003: 23).

The **Delphi method** facilitates structured communication through multiple rounds of surveys and the construction of a valid consensus among experts on predictions regarding a certain issue of interest. Typically, a team of researchers (the Delphi Team) asks a panel of experts anonymously to respond to written questions and statements. In an initial round, the experts have to outline their estimate how certain events could evolve in the future.<sup>2</sup> After collecting and evaluating results of the first round, the Delphi Team sends its findings, including statistical results, back to the panel of experts. In one or more subsequent rounds, the experts are asked to connect the information from the evaluated previous survey with their own estimate, to compare it with the average assessment, and to provide explicit reasons if their assessment differs conspicuously from the other experts’ assessments (see Kosow, Gaßner 2008: 87; Kocks 2014: 11; Rowe, Wright 1999: 354). Provided that expert opinion is supported by reliable data, the degree of uncertainty concerning the issue of interest reduces with each survey round, without necessarily eliminating dissent.<sup>3</sup>

While Delphi surveys not only provide a solid and validated basis of knowledge, which facilitates the identification and analysis of key factors influencing the issue of interest (see Kosow, Gaßner 2008: 89), but can also be used to assess whether a certain course of action or policy measure is

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1 In particular, the Smic-Prob-Expert model was deployed in several contexts, e.g. IFAMA (2014) conducted a survey examining the state of global agri-food sector in 2030 (see Lakner, Baker 2014).

2 The Delphi method is widely used in the international development context. The FAO, for example, recently conducted a Delphi survey to develop future-oriented tools and approaches that support policy-making to strengthen national forest policies and programmes (see Herder et al. 2014). In 2009, the FAO implemented another Delphi survey analysing the aquaculture development globally (see Hishamunda, Poulain, Ridler 2009), and in 2014, the World Bank ran a Delphi survey as a tool in Amazon rainforest valuation (see Strand et al. 2014).

3 Traditionally, the Delphi method has aimed at a consensus of the most probable future by iteration. However, “Disaggregative Policy Delphi uses cluster analysis as a systematic tool to construct various future scenarios in the latest Delphi round” (see Herder et al. 2014: 44). Strand et al. (2014: 8) stress that “an implicit objective of the Delphi exercise is to reduce the variance of participants’ answers, thus achieving more of a group consensus, while at the same time not pressuring those with firmly held positions to change.”

appropriate to achieve desired outcomes (see Lundsgaarde 2008: 19). Practical considerations may offset this potential:

- First, even experts may underestimate future outcomes, make simplifications, feel compelled to make unwarranted predictions, or deliver slipshod responses (see Steinmüller 1997: 81f.).
- Second, the requirement of multiple survey rounds leads to a long data collection process that may also diminish the attention of the experts over time (see Lundsgaarde 2008: 19).
- Third, the survey format may limit the open-endedness of expert responses (ibid.) and hence the opportunity to explore multiple futures.
- Fourth, Habibi et al. (2014: 9) criticise that a “major weakness of Delphi is the lack of a theoretical framework” because Delphi is applied in quite diverse ways, with differing requirements, e.g. for panel size.

## 1.5 Qualitative techniques

Qualitative scenario building is the narrative derivation of certain scenarios either driven by the open question “What could happen?” (forecasting explorative techniques) or driven by wishful thinking “What should happen?” (backcasting normative techniques) (see Lundsgaarde 2008: 21).

Forecasting **explorative scenario building techniques** are often labelled “intuitive logic”, relating back to the scenario development work of Shell, Stanford Research Institute (SRI) International, and the Global Business Network. It offers an open process in which all futures and scopes of action that participants assume to be possible can be regarded and discussed. The explorative technique is considered to be the most utilised scenario building technique (ibid.: 23) which reflects widespread application examples in the international development context:

- WorldFish (2010) organised a workshop “characterised by the openness to several possible events and different developments”, in which participants were asked to construct four consistent scenarios for 2050 regarding climate change, aquaculture and fisheries in Ghana, Senegal, and Mauritania (see Badjeck et al. 2011: 3).
- The Consultative Group on International Agricultural Research (CGIAR) in cooperation with the FAO, the United Nations Environment Programme World Conservation Monitoring Centre (UNEP WCMC), and the Northern Mountainous Agriculture and Forestry Science Institute (NOMAFSI) lined up a workshop in Vietnam exploring “key regional socio-economic and governance uncertainties for food security, environments and livelihoods under climate change [...] describing futures up to 2050” (see CGIAR et al. 2013: 3).
- The University of Wisconsin-Madison in cooperation with The Nature Conservancy published a study examining potential outcomes for biodiversity, provisioning of ecosystem services, and resilience of forests in the western Great Lakes region of the United States. They essentially developed explorative scenarios informed by expert knowledge but integrated quantitative, spatially explicit landscape modelling (see Price et al. 2012: 76).

- The Chronic Poverty Research Centre (2011) conducted an explorative scenario analysis and developed an assessment model to investigate future scenarios assuming different paths of poverty reduction. The assessment model is based on the International Futures (IFs) integrated assessment model by the Pardee Centre for International Futures<sup>4</sup> (see Cantore 2011: 4f.).

The examples of FAO (2014) and (2013) as well as the scenario building conducted by the World Energy Council (2013) outlined in chapter 1.2 are also examples of forecasting explorative techniques.

- In the FAO Vietnam case (2014), the scenario technique was used in order to guide climate smart agriculture and examine the feasibility of concrete actions. In the Malawi case, the scenario technique facilitated identifying potential pitfalls and providing possible solutions (see FAO 2014: 10-18; FAO 2013: 6-19).
- The World Energy Council (2013) developed scenarios regarding energy supply and consumption globally up to 2050. Using a qualitative explorative methodology, over 60 experts from 28 countries discussed strategies, identified 116 drivers and grouped them into 15 key clusters in five different areas. On the basis of these drivers, the participants developed two possible scenario paths, discussed implications of the options for climate, analysed risk factors, quantified and compared the scenarios, and transferred the World Energy Scenarios to six world regions (see World Energy Council 2013: 12-24).

Two further scenarios have a specific relation and relevance to the topic of inclusive and sustainable rural transformation.

- "Future Scenarios for Pastoral Development in Ethiopia 2010-2025" deals with pastoral economic growth and options for development policies. The paper was elaborated for the Department for International Development (DFID) by a group of experts (Little, Behnke, McPeak and Gebru 2010). The construction of these policy-oriented scenarios is not generated from workshops but derive from a continuous process of dialogues and interviews with stakeholders and experts in Ethiopia, as well an expert policy review comparing policies of other countries with related problems in the areas of pastoralist development.
- "Africas Evolving Food Systems – drivers of change and the scope for influencing them" (IIED 2014) is another example of explorative scenario building by experts. By designing plausible future scenarios the authors explore the range and limits of policy choices with regard to food security and poverty reduction. The scenarios are supposed to indicate states, governments, policy makers and decision takers the realm of endogenous factors that could be modified and will have influence on different probable futures distinguishing them from exogenous factors.

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4 The model incorporates dynamically linked sub-models, which include: population, economic, agricultural, educational, energy, socio-political, international political, environmental, health, infrastructure and technology. The help system that accompanies the software provides an extensive overview of the model structure and computer code used to write the model.

The advantage of an explorative approach is the orientation towards supporting decision-making processes. The technique helps practitioners to face potential forces of change in order to react better to unexpected transitions and therefore documents mainly organisational learning processes that can be translated into action (see Lundsgaarde 2008: 23). CGIAR et al. (2013) summarise the advantage as follows: "Scenarios are an excellent tool for concrete policy and investment guidance [...]". However, such an explorative scenario building process requires a clear marked out question and the involvement of qualified stakeholders. This relatively resource-intensive method might also provoke due to the selective range of topics in advance (see Lundsgaarde 2008: 21; Kosow, Gaßner 2008: 76f.).

Backcasting **normative scenario building techniques** focus on the pure description of paths that need to be taken to move from the present situation to a preferred future goal. In contrast to explorative techniques, this process sounds out the pathway leading to a single preferable end goal and is therefore less open-ended than the exploration of multiple futures (see Lundsgaarde 2008: 21f.). In particular, this approach has been applied regarding issues of environmental sustainability, energy use, transport, and urban planning (ibid.: 22).

- The Joint Research Centre (JRC) of the European Commission (2008) conducted a normative scenario building process applied to transport in order to achieve sustainable mobility, and created a scenario to 2050 (see Miola 2008).
- The OECD (2002) realised a normative scenario building process over the period 1994-2000 to outline how public transport can be structured environmentally sustainable by 2030.
- In 2003 the International Energy Agency (IEA) and OECD (2003) undertook a study examining energy scenarios for a sustainable future to 2050. However, they used both normative and explorative techniques to realise their survey.

Normative techniques are very useful when a desirable goal has already been determined and the scenario technique is supposed to provide impulses for achieving it (see Lundsgaarde 2008: 22). The backcasting methodology is especially advantageous when problems are complex and decision makers are pressed for time (see Miola 2008: 6). Some practical obstacles arise out of the fact that scenario building requires thinking in long-term periods, which can collide with the short-term approach often associated with normative backcasting. Another disadvantage of normative techniques is that their structure limits the open-endedness of the scenario building process (see Lundsgaarde 2008: 22f.). Finally, normative techniques, too, require a concrete research question and qualified stakeholders to succeed.



## 1.6 Conclusion

The characteristics and requirements of quantitative and qualitative scenario techniques can be summarised as follows:

| Quantitative scenario techniques   | Qualitative scenario techniques  |
|--|--|
| Empirical basis, determined by figures and model equations, not open-ended   | Process orientation, open-endedness  |
| Assessment (cross impact/influence analysis) and modelling (computer simulations)  | Exchange and joint judgement (based on the 'wisdom of the many')   |
| Analysis of interaction and feedback effects, usually based on statistical analysis  | Narrative description of causal relationships ('if ..., then')   |
| Work with figures and diagrams ('extent of XY'); advantage: replicable, transparent  | Work with words, symbols, storylines ('direction of XY'); advantage: comprehensible, interesting   |
| Requires a comprehensive database  | Requires a clear, marked-out question  |
| Requires computer programming (computer simulations) and data analysis and/or data interpretation skills (cross impact/influence analysis) | Requires process moderation skills, systemic thinking (cross impact/influence analysis), intuition and creativity, and the involvement of key stakeholders |
| <b>Figure 4. Characteristics and requirements of quantitative and qualitative scenario techniques</b><br><br>Source: own research          |  |

Since the described techniques have largely been applied since the mid-1990s/2000s at the earliest, often with a time horizon of several decades, statements about the predictive power of these scenario techniques are difficult. However, until today, the Shell scenarios from the 1970s (see Chapter 1.2) seem to show a high predictive power.



## 2 Applied Scenario Technique for the Research Project

The topic of the research project and the framework conditions under which it was implemented limited the choice of scenario techniques:

- The complex nature of rural transformation, with a high number of (partly intangible and country/region-specific) economic, political-institutional, socio-cultural and environmental factors influencing it, ruled out the application of computer simulations and the required formulation of a quantitative system model with a limited number of pre-defined variables.<sup>5</sup>
- The limited time frame for the scenario building exercise (less than 1 year) ruled out the application of time-consuming techniques such as the Delphi method.
- The fact that concepts like social inclusion are controversial, depending on the values and political opinions of stakeholder groups involved in the scenario building, spoke against a normative scenario technique that requires a predefined joint goal.

Deriving comprehensible, political as well as practical strategic recommendations to the BMZ from the scenario building exercise required an adequate mix of quantitative and qualitative elements in the design of the scenario technique. The variety of (potential) factors determining rural transformation called for an open-ended explorative scenario technique, whereas the systemic character of rural transformation and the need to identify key levers to shape rural transformation in a socially inclusive and sustainable way required an analysis of interdependencies between the factors.

The ever-present debate on the right pathways towards a socially and environmentally just rural transformation in developing countries necessitated a scenario building process that does not require a consensus on valuations and strategic recommendations but allows for the appreciation and recording of (sometimes dissenting) opinions about the inter-relatedness of different aspects of rural transformations and their relevance for inclusive and sustainable pathways of transformation.

The research team decided on a time horizon of 15 years (until 2030) for the scenario building. This allowed for a sufficiently long-term view of the future without losing track of near-term requirements for action, and also coincides with the time target of the Sustainable Development Goals (SDGs) that form a global frame for international development and poverty reduction and for this research project.

Overall, the scenario building process comprises the following steps and elements, which the following chapter describes in detail.

---

<sup>5</sup> Moreover, regional data may not be available, particularly if the regions stretch over administrative borders, or may be expensive to obtain.

- Preparatory activities (conceptual elaboration of a multidimensional understanding of rural transformation in sub-Saharan African countries, i.e. the economic, political-institutional, socio-cultural, and ecologic dimension, literature review, analysis of available data, assessment of past developments and the current status by experts) provide for a **stocktaking of recent trends in rural transformation** in the case country/region.
- Based on their expertise, mutual exchange and joint judgment, experts from different backgrounds (government, civil society, academia, private sector), covering a multi-dimensional perspective as well as a variety of professional and societal perspectives, validate and further **identify factors determining rural transformation** in the case country/region. After determining the required characteristics of these factors, they **develop narrative linear scenarios** within the assumed probability space.
- By way of a systemic **cross-impact/influence analysis**, applying an influence matrix, the experts analyse identified key factors for their interaction, feedback effects, influence, and influenceability. Together with the research team, they transform the result of this analysis into a narrative description of causal relationships.

A more elaborate **analysis of key forces behind the factors** forms the basis for **deriving strategic recommendations** by the experts on required policies, strategies, institutions and regimes, and instruments to work towards rural transformation in the case country/region in a socially inclusive and sustainable way. This is complemented by the development of a narrative systemic scenario.

The following manual (Chapter 3) provides detailed guidance to facilitators who implement similar scenario building workshops, on the preparation, conduct and documentation of such workshops. It draws on the practical experience of the research teams with three workshops in Lusaka, Cotonou, and Addis Ababa.

## 3 Facilitating Scenario Workshops

Before describing the step-wise methodical procedure in detail, this chapter starts with general remarks on the preparation, facilitation and documentation of a scenario workshop.

### 3.1 Workshop preparation

There should be at least 15 workshop **participants** to provide sufficient diversity of backgrounds and for work in up to five groups of at least three participants. In the case of rural transformation, expertise in the economic, socio-cultural, political-institutional and ecological dimensions is necessary. Ideally the number should not exceed 20 to ensure sufficient participation by all individuals in plenary discussions and to keep the workshop manageable. This holds in particular for steps 1-6 of the methodology, whereas steps 7-10(11) only require a minimum of 8-10 participants.

The participants should represent important national institutions, in particular government (relevant ministries covering e.g. agriculture, natural resources / environment, social affairs), civil society (NGOs, associations, churches), relevant research institutions, and the private sector (the local business community). The participants should also combine expertise in the key dimensions related to the subject for which the scenario is going to be built; in the case of rural transformation, these are the economic-technical, socio-cultural, demographic, political/institutional, and environmental dimensions.

All participants must be conversant with the workshop topic (e.g. 'rural transformation') and have good knowledge of the situation on the ground. At the same time, the group of participants should be diverse in terms of the people / societal groups they speak for (or represent, such as farmers' representatives), and also in terms of age, and sex.

The participants need to be carefully identified to ensure that they can interact on equal standing, holding a similar position in their respective institutions. They must be invited well in advance and reminded of their participation, if required, as the workshop takes up to five days.

The importance of a conducive workshop **venue** must not be underestimated. The main workshop room should be spacious, also providing plenty of free space on the walls to hang up large sheets of paper displaying workshop inputs and results. At least two smaller rooms or space outside the building should be available for group work.

All necessary **equipment and materials** must be procured in advance. Apart from well-equipped presentation cases (pins, paper bands, scissors, glue sticks, etc.) items include in particular:

- At least 2 laptops (for documentation);
- 1 printer;
- At least 1 flipchart stand and ample flipchart paper;
- At least 5 pin boards and 40 sheets of large brown paper;

- Some 700 cards (250 white, the rest in different colours);
- 25 black markers plus 15 in different colours;
- 1 camera (to document the workshop);
- 500 adhesive points in two colours (250 each).

### 3.2 Workshop facilitation

A team with four to five members is responsible for facilitating the scenario workshop. The main tasks of the team are:

- To support and **facilitate the work process of the participants** in order to achieve results that are a commonly shared product of different views, sorts of knowledge, and perceptions of reality, and
- To **document the workshop comprehensively** in order to inform the facilitators, participants and concerned third parties about facts, ideas, arguments and considerations that influenced the work process and its results.

Adopting a **participatory workshop approach**, the team of facilitators needs to organise itself so that the best possible and most valid workshop results can be achieved by a motivating, creative but at the same time focussed work process with informative documentation. This requires, inter alia, good time management and accurate visualisation and handling of concepts and facts. The team members need to divide the following roles and functions among themselves:

- **Facilitator:** facilitates plenary sessions, coordinates inputs, supervises group work, and is responsible for methodological decisions required in the course of the workshop. Facilitates a working group, if needed.
- **Co-Facilitator:** assists the main moderator/facilitator, manages the required materials during sessions, manages prepared sheets and visualisations, facilitates working groups, and is always ready to take over the facilitation of plenary sessions, if necessary.
- **Logistician:** ensures that required equipment and materials are at hand (including copies of papers produced in the workshop), organises meals and transport, administers finances (petty cash, allowances), facilitates working groups, and is always accessible as contact person to the hosting institution (e.g. conference hotel, university).
- **Documenters** (at least two team members): document discussions and workshop results (including taking pictures of visualised inputs and working group results) and facilitate working groups.
- The facilitators also have to elaborate a workshop schedule indicating start and closing times, sessions and breaks. As an example, Annex 1 contains the programme of the scenario workshop in Addis Ababa held in February 2016.

### 3.3 Workshop documentation

Note-taking, particularly during plenary discussions, and photographing of all inputs and results produced during the workshop are the two key means of documentation. Voice recording and later transcription is not necessary and may not be feasible. Video recording will be required if the intention is to produce a short film of the event. When note-taking (handwritten or on the laptop/computer), it is important to

- trace all discussion threads,
- take notes of argumentative reasoning that leads to statements, assessments or ratings, and
- write down consensuses as well as dissenting opinions on issues discussed.

Following the workshop, the team of facilitators documents the process and the results in a reader-friendly and illustrative report. For this purpose it is also necessary to take pictures of (groups of) workshop participants during sessions.

### 3.4 Order and layout of the instruction sheets for facilitators

The scenario workshop methodology follows a sequence of ten steps (plus an optional eleventh step) that need to be implemented in this order to achieve the intended results:

Step 1: Starting the workshop

Step 2: Identifying major macro-trends and directions of change

Step 3: Identifying and defining determining factors

Step 4: Weighting and filtering of the factors

Step 5: Describing variations of the key factors

Step 6: Developing narrative linear scenarios

Step 7: Assessing mutual influences of the factors

Step 8: Analysing the functional character of the factors

Step 9: Analysing pathways and strengths of interdependencies

Step 10: Developing scenarios through changes of the factors


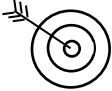




Step 11 (optional): Developing scenarios through changes of interdependencies





The detailed description of each step follows a uniform order and provides the following information:

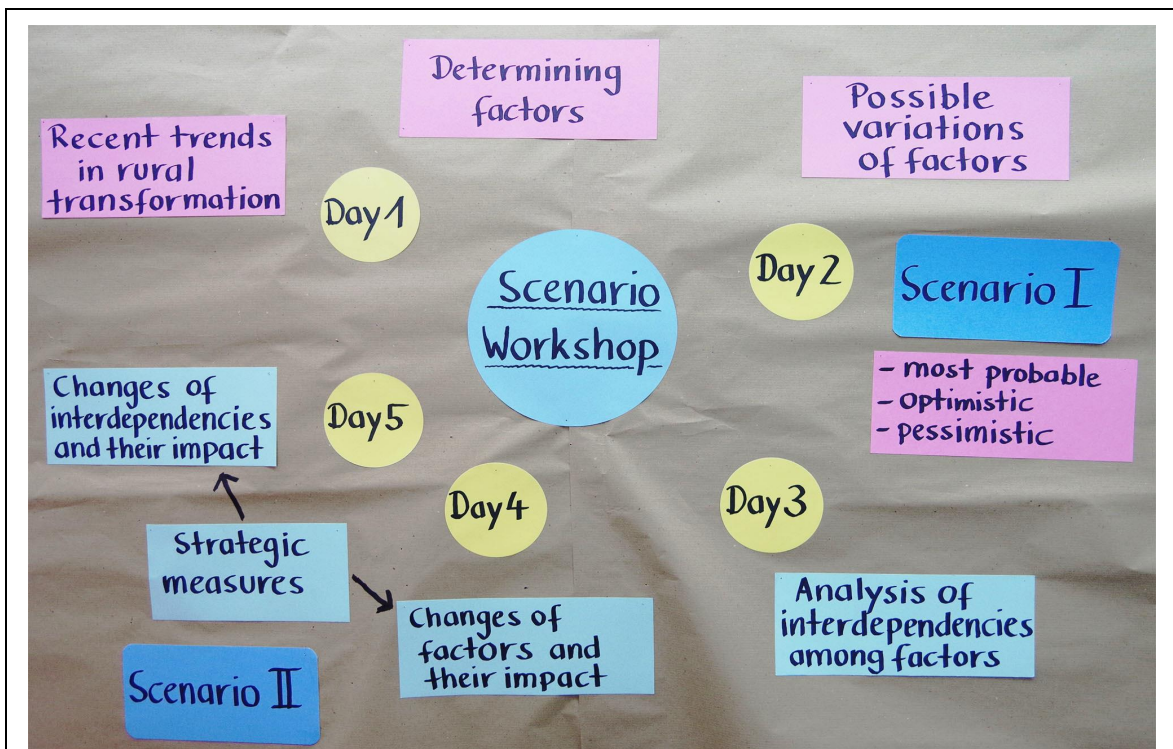
- Result: Briefly states the objective(s) of the step
- Method: Names and describes the method or instrument applied in the step
- Time: Estimates the time required to implement the step
- Guiding questions: Formulates the key questions to be answered with the step
- Hints: Provides practical advice on how to facilitate the step

- Team: Shows the number and functions of persons required for facilitation and documentation of the step
- Material: Specifies the material and equipment required to facilitate the step
- To be prepared: Specifies necessary preparations of the step
- Documentation: Describes required documentation tasks and shows practical examples from implemented scenario workshops



| STEP 1: Starting the workshop |   |   |
|-------------------------------|---|--|
| <b>Result</b>                 |  | The participants got to know each other. They have understood the context of the workshop topic and its objective and methodology. They have discussed the key concepts of rural transformation, social inclusion and ecological sustainability.   |
| <b>Methods</b>                |  | <ul style="list-style-type: none"> <li>➡ Grouping</li> <li>➡ Presentation and discussion</li> </ul>  |
| <b>Time</b>                   |  | 60-70 minutes: <ul style="list-style-type: none"> <li>▪ 15-20 minutes for grouping</li> <li>▪ 45-50 minutes for presentations and discussion</li> </ul>  |
| <b>Guiding question</b>       |  | <ul style="list-style-type: none"> <li>➡ What is the joint understanding of the participants of rural transformation and the relevance of working towards a socially inclusive and environmentally sustainable pathway?</li> </ul>   |
| <b>Hints</b>                  |  | <ul style="list-style-type: none"> <li>➡ For the grouping exercise, use categories that relate to the workshop topic and that highlight the diversity of participants, for instance:             <ul style="list-style-type: none"> <li>▪ Who was raised in a rather rural place / in a rather urban place?</li> <li>▪ Who has a rather social science / rather technical science background?</li> <li>▪ Who considers himself/herself rather an academic / rather a practitioner?</li> <li>▪ Who has prior experience / no experience with scenario building?</li> </ul> </li> <li>➡ Putting these questions to the participants, ask them to form groups accordingly. Then 'interview' participants individually about their background.</li> <li>➡ Use the following sequence for the brief presentations:             <ol style="list-style-type: none"> <li>a. Overview of the workshop programme</li> <li>b. The workshop topic (rural transformation) and underlying concepts</li> <li>c. The concept of social inclusion</li> <li>d. The concept of environmental sustainability</li> <li>e. Scenarios and scenario building</li> </ol> </li> <li>➡ Work towards a joint understanding of the workshop topic and the underlying key concepts and definitions by giving the participants enough time to discuss – but also acknowledge differing opinions.</li> <li>➡ Use quotes and examples to illustrate the workshop topic and the concepts of social inclusion / exclusion and environmental sustainability / non-sustainability.</li> </ul> |

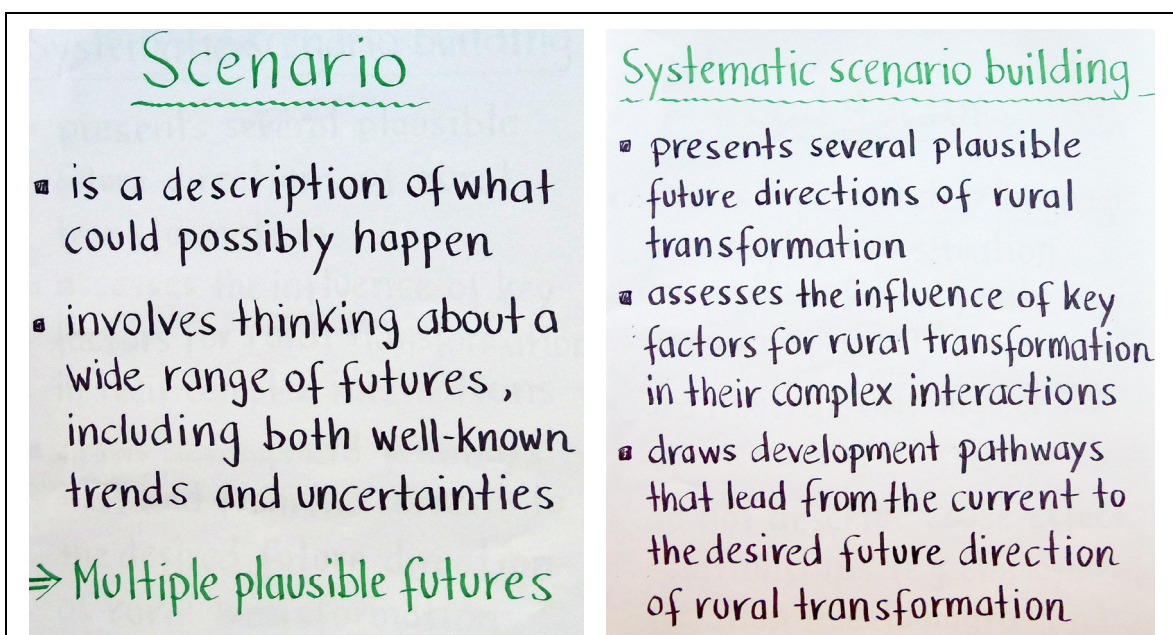
|                       |  |   |
|-----------------------|--|---|
|                       |  | <ul style="list-style-type: none"> <li>➔ Explain that the workshop will not be held in a 'conference' mode, where presentations alternate with question and answer sessions, but in a mode of interaction with the aim to work together on a joint result.</li> </ul>   |
| <b>Team</b>           |   | <ul style="list-style-type: none"> <li>➔ 1 facilitator (of the exercise and session)</li> <li>➔ 2-3 presenters (of the inputs)</li> <li>➔ 2 documenters (of the inputs and the discussion)</li> </ul>   |
| <b>Material</b>       |   | <ul style="list-style-type: none"> <li>➔ 1 flipchart</li> <li>➔ 3 pin boards</li> <li>➔ 1 camera (to document the results)</li> </ul>   |
| <b>To be prepared</b> |   | <ul style="list-style-type: none"> <li>➔ Flipcharts with quotes and examples</li> <li>➔ Presentations (on boards)</li> <li>➔ Brief concept notes of the workshop topic (rural transformation), social inclusion / exclusion and environmental sustainability / non-sustainability, and related definitions</li> </ul> |
| <b>Documentation</b>  |  | <ul style="list-style-type: none"> <li>➔ Document the discussion in written form, noting all aspects and contradictions.</li> <li>➔ Photograph all presentations and store the photos centrally.</li> </ul>   |



**Figure 5. Scenario workshop overview**

It is useful to visualise the overview of the scenario workshop programme and to keep it pinned on a wall for easy reference during the workshop.

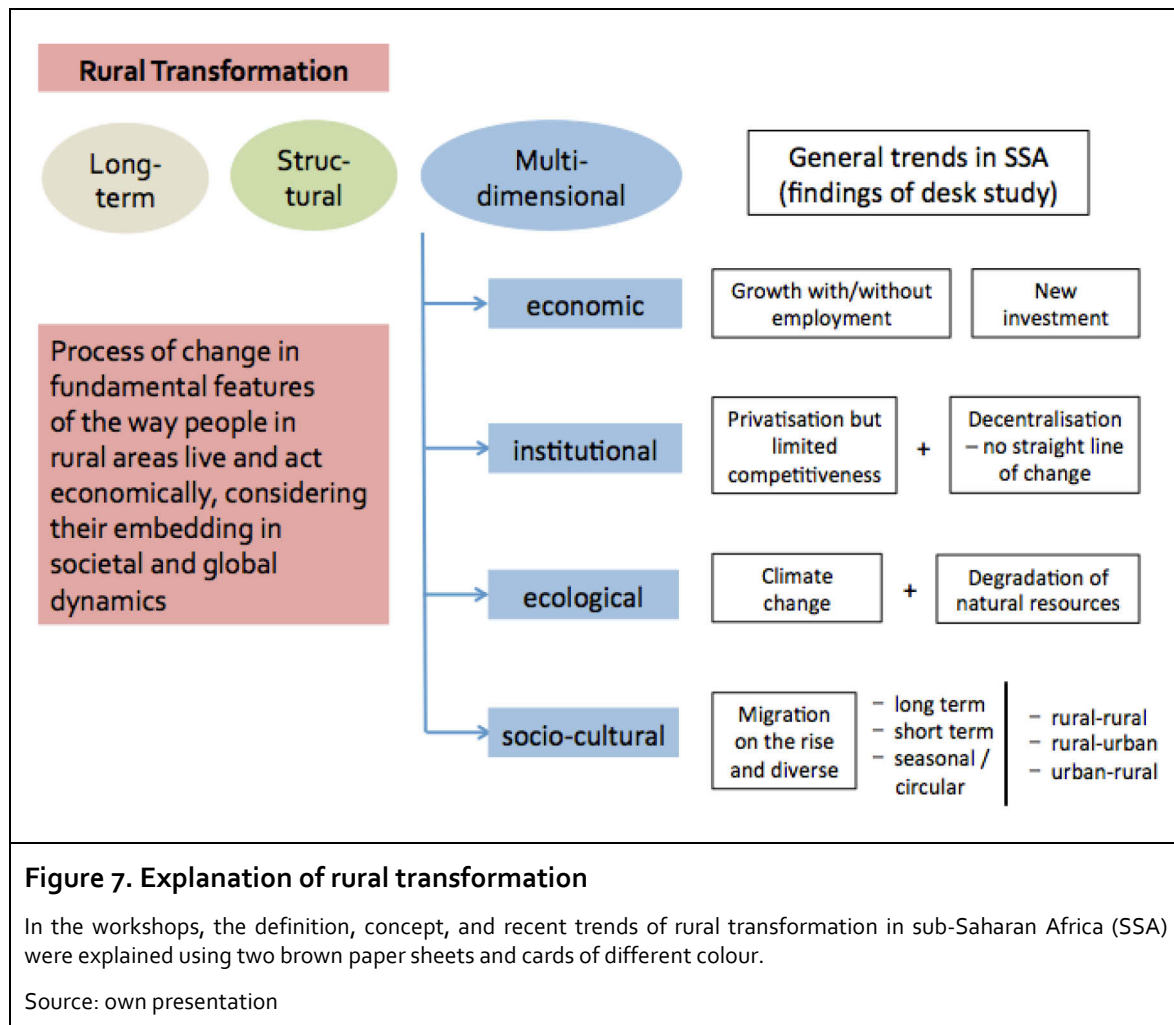
Source: SLE



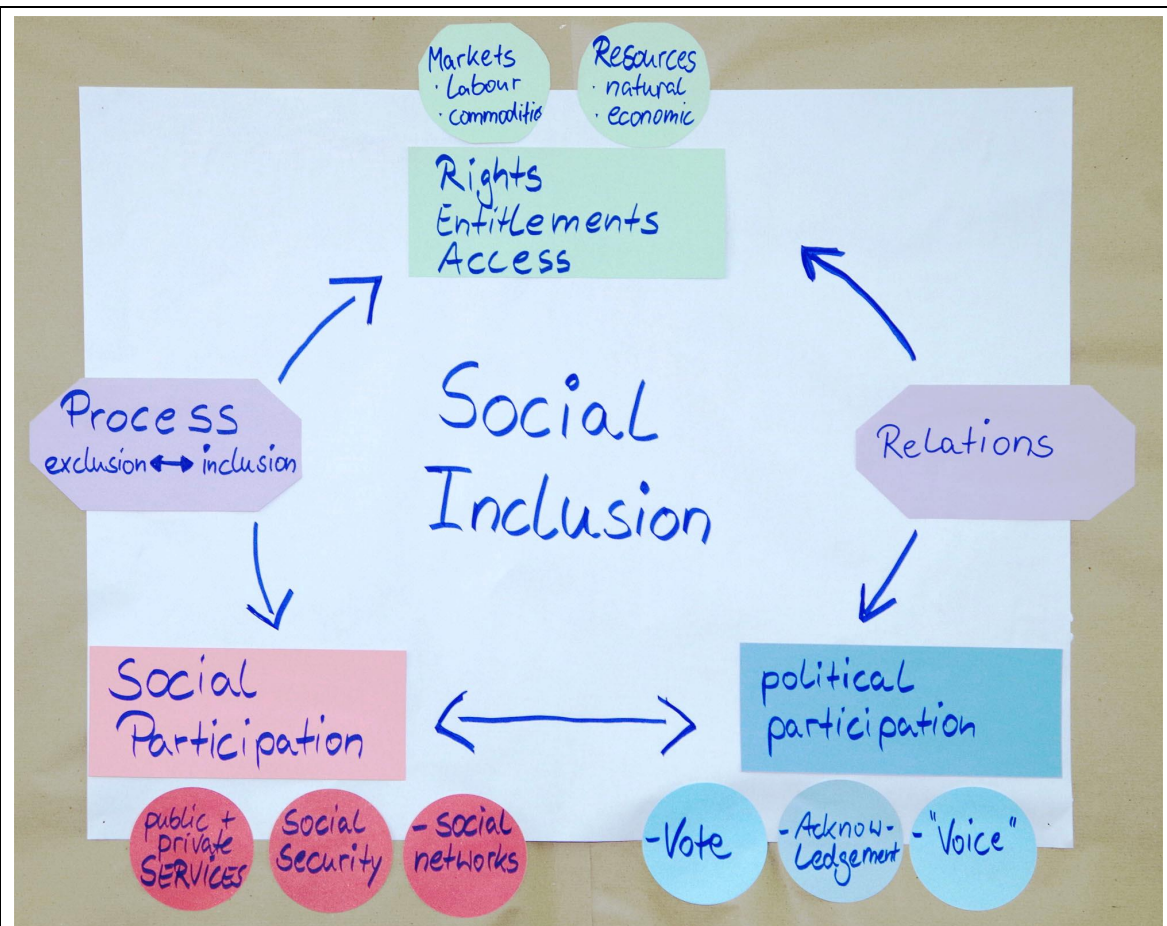
**Figure 6. Explanation of scenario and scenario building**

These flipchart papers were used in the scenario workshops to explain the ideas of 'scenario' and 'scenario building'.

Source: SLE



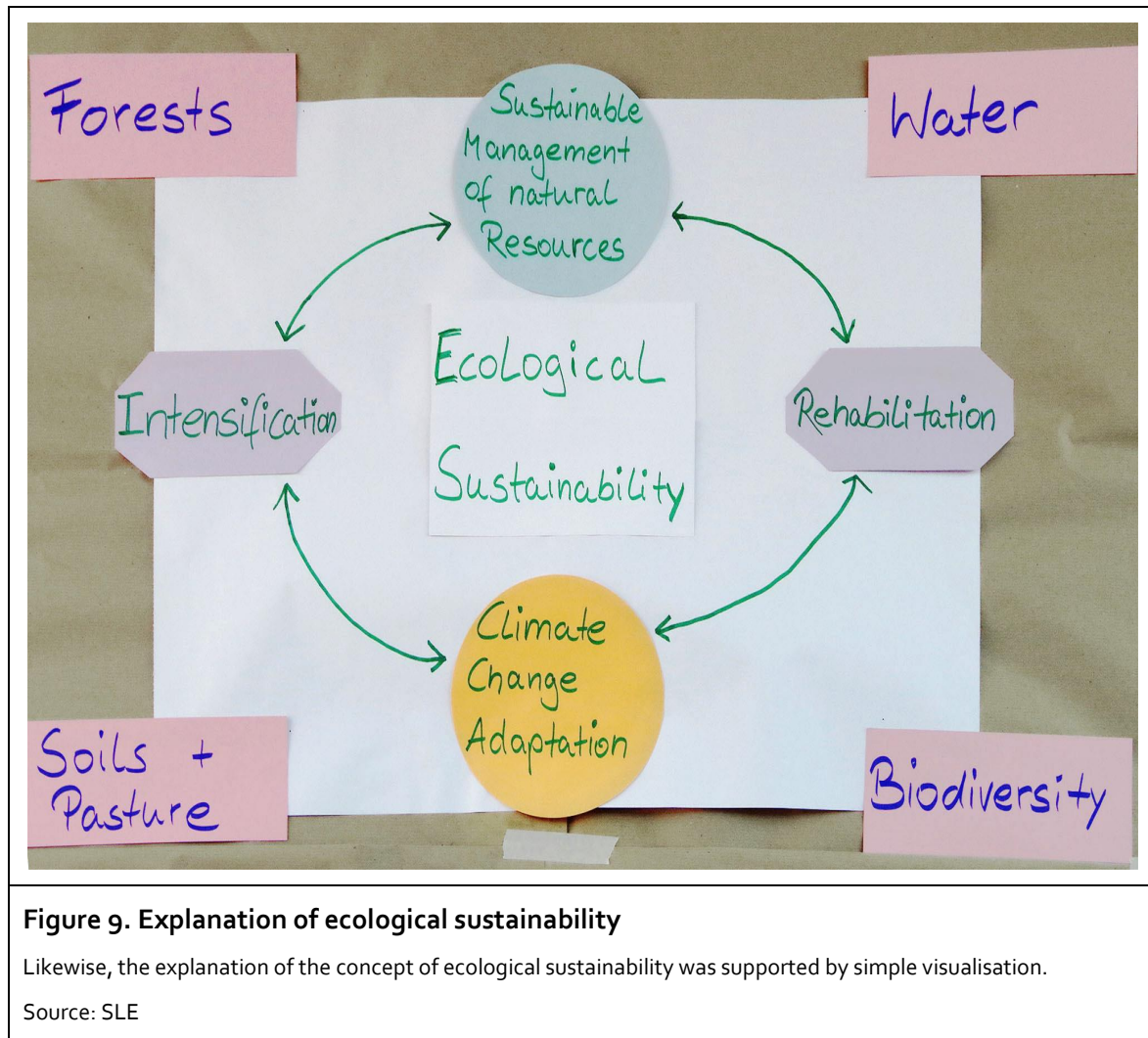


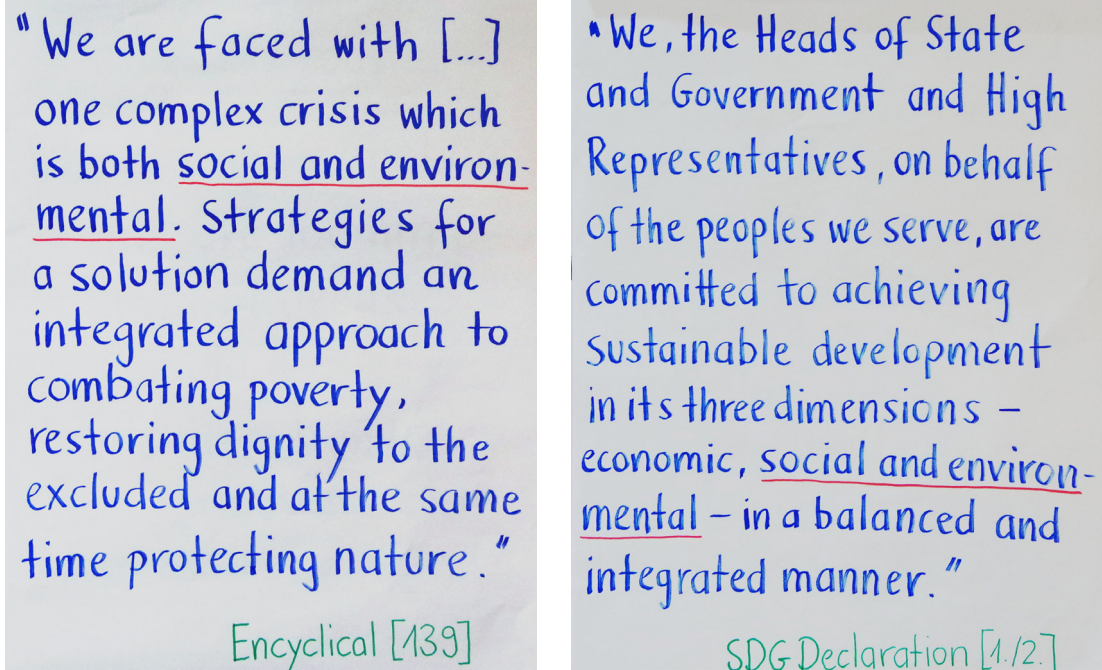


**Figure 8. Explanation of social inclusion**

A simple visualisation helped to explain the concept of social inclusion.

Source: SLE





**Figure 10. Quotes to emphasise the need for social-environmental transformation**

Reference was made to two fundamental statements, one quoted from Pope Francis' encyclical on the environment (left side) and the other quoted from the Declaration on the Sustainable Development Goals (right side).






Source: SLE









## STEP 2: Identifying major macro-trends and directions of change



| Result  |    | The participants have identified and discussed rural transformation trends in their country and their social and ecological implications. They have reached a basic agreement on directions of change in the recent past.   |   |           |           |  |                      |                      |  |                      |                      |   |                      |                      |  |                      |                      |   |                      |                      |
|---|---|---|---|-----------|-----------|--|----------------------|----------------------|--|----------------------|----------------------|---|----------------------|----------------------|--|----------------------|----------------------|---|----------------------|----------------------|
| Method  |    | <div>➡ Qualitative trend description</div> <div>Produce a matrix for the formulation of past rural transformation trends (directions of change spanning a period of about 35 years):</div> <table><tr><th>Basic features of the way people in rural areas live and act economically, and their implications</th><th>1980-2000</th><th>2000-2015</th></tr><tr><td>Forms of migration and their social and environmental implications</td><td>directions of change</td><td>directions of change</td></tr><tr><td>Income sources and their social and environmental implications</td><td>directions of change</td><td>directions of change</td></tr><tr><td>Forms of land use and their social and environmental implications</td><td>directions of change</td><td>directions of change</td></tr><tr><td>Characteristics of families and households and their social and environmental implications</td><td>directions of change</td><td>directions of change</td></tr><tr><td>Further Feature (if felt necessary by the participants)</td><td>directions of change</td><td>directions of change</td></tr></table> | Basic features of the way people in rural areas live and act economically, and their implications | 1980-2000 | 2000-2015 | Forms of migration and their social and environmental implications | directions of change | directions of change | Income sources and their social and environmental implications | directions of change | directions of change | Forms of land use and their social and environmental implications | directions of change | directions of change | Characteristics of families and households and their social and environmental implications | directions of change | directions of change | Further Feature (if felt necessary by the participants) | directions of change | directions of change |
| Basic features of the way people in rural areas live and act economically, and their implications | 1980-2000   | 2000-2015   |   |           |           |  |                      |                      |  |                      |                      |   |                      |                      |  |                      |                      |   |                      |                      |
| Forms of migration and their social and environmental implications                                | directions of change  | directions of change  |   |           |           |  |                      |                      |  |                      |                      |   |                      |                      |  |                      |                      |   |                      |                      |
| Income sources and their social and environmental implications                                    | directions of change  | directions of change  |   |           |           |  |                      |                      |  |                      |                      |   |                      |                      |  |                      |                      |   |                      |                      |
| Forms of land use and their social and environmental implications                                 | directions of change  | directions of change  |   |           |           |  |                      |                      |  |                      |                      |   |                      |                      |  |                      |                      |   |                      |                      |
| Characteristics of families and households and their social and environmental implications        | directions of change  | directions of change  |   |           |           |  |                      |                      |  |                      |                      |   |                      |                      |  |                      |                      |   |                      |                      |
| Further Feature (if felt necessary by the participants)   | directions of change  | directions of change  |   |           |           |  |                      |                      |  |                      |                      |   |                      |                      |  |                      |                      |   |                      |                      |
| Time  |  | <div>135 minutes:</div> <div><ul style="list-style-type: none"><li>15 minutes for discussion on features and periods</li><li>60 minutes for working groups</li><li>60 minutes for presentation and discussion of working group results</li></ul></div>  |   |           |           |  |                      |                      |  |                      |                      |   |                      |                      |  |                      |                      |   |                      |                      |
| Guiding questions   |  | <div>➡ Which transformation trends (directions of change) can be described for the recent past in the rural areas of the country / region?</div> <div>➡ How have these trends affected various societal groups and the environment?</div>   |   |           |           |  |                      |                      |  |                      |                      |   |                      |                      |  |                      |                      |   |                      |                      |
| Hints   |  | <div>➡ Regarding the past before the year the workshop is held, choose appropriate time periods other than 1980-2000 and 2000 and the year before the workshop is held, provided there were decisive political/structural turning points in the country (such as a crucial regime change); however, make sure that there are not more than maximum 3 past-time periods (as otherwise the exercise becomes too time-consuming) and that the past spans 30-40 years (as otherwise hardly any participant has personal experience of the period discussed).</div>  |   |           |           |  |                      |                      |  |                      |                      |   |                      |                      |  |                      |                      |   |                      |                      |

|                       |   |  |
|-----------------------|---|--|
|                       |   | <ul style="list-style-type: none"> <li>➔ Suggest the basic features 'Forms of Migration', 'Income Sources', 'Forms of Land Use' and 'Characteristics of Families and Households', but be open for suggestions of the participants. Should the participants identify a basic feature that was not introduced, add it to the list. Beware that each feature requires one working group that needs to be moderated!</li> <li>➔ Form working groups of 4-5 participants to discuss rural transformation trends and their effects on different societal groups and the environment (1 feature per group).</li> <li>➔ To structure their discussion, the working groups can define sub-features of the feature they are dealing with, for instance: <ul style="list-style-type: none"> <li>▪ Forms of migration: rural-urban, rural-rural, urban-rural</li> <li>▪ Forms of land use: agriculture, pastoralism, fishery</li> </ul> </li> <li>➔ Explain that 'characteristics of families and households' covers also values and gender relations.</li> <li>➔ Ask the participants to produce narratives to describe the recent trends, including decisive events in the past that changed directions.</li> <li>➔ One participant from each group should present the group's results.</li> </ul> |
| <b>Team</b>           |  | <ul style="list-style-type: none"> <li>➔ 1 facilitator (of the plenary session)</li> <li>➔ 1 presenter (of the matrix and features)</li> <li>➔ 4-5 facilitators (of the working groups, may include the moderator)</li> <li>➔ 2 documenters (of the discussion)</li> </ul>   |
| <b>Material</b>       |  | <ul style="list-style-type: none"> <li>➔ 3 pin boards</li> <li>➔ 5-6 brown paper sheets</li> <li>➔ 8-10 markers</li> <li>➔ 1 camera (to document the results)</li> </ul>   |
| <b>To be prepared</b> |  | <ul style="list-style-type: none"> <li>➔ 1 pin board with the matrix</li> <li>➔ 4-5 tables with brown paper sheets</li> <li>➔ 2-3 pin boards for group presentations</li> </ul>  |
| <b>Documentation</b>  |  | <ul style="list-style-type: none"> <li>➔ Document the main points of feedback and discussion on group work results during the plenary session.</li> <li>➔ Photograph all presentations and store the photos centrally.</li> </ul>  |


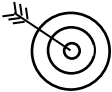




| Basic feature: cash <b>income</b> + food <b>sources</b> |   |   |
|---|---|---|
| Sub-feature   | early 80s to early 90s  | early 90s to today  |
| Livestock population and products                       | 1984 Sahelian drought <ul style="list-style-type: none"> <li>• very slight decrease of livestock population</li> <li>• recovery phase (10 years)</li> <li>• higher income effect on the poor</li> </ul> | Climate change affects income, average income declining (asset depletion), transition out of pastoralism (intense livestock production) |
| Crops   | Insignificant source of income  | Income (food) slightly increasing (supplementary to livestock)  |
| Renting out (house, live-stock, land)                   | Unthinkable (common resource)   | Slowly becoming source of income for the better-off   |
| Dry land natural products                               | Not for commercial use (domestic only)  | On average 5% of income (for women, poor, those who lost livestock)   |
| Traditional safety net of the poor                      | Moderate decrease (interest remains the same but reduced ability to contribute)   | Moderate decrease (due to climate change and its effects)   |
| Trade   | Somali and Afar livestock traders existed   | Trade increased due to better markets for cross-border trade, charcoal trade increased  |
| Petty trade   | Not so much, little urbanisation, little urban-rural linkages   | Increased as coping mechanism   |
| Employment  | Many 'highlander' employed in offices   | Increased education opportunities and training has led to better employment for locals  |
| Casual labour   | No opportunity, no interest   | Moderately increasing for uneducated youngsters   |
| Remittances   | Little remittances (by Somalis)   | Increased due to international migration of pastoralist families  |
| Food aid  | Food aid for the first time in 1984   | Significantly increased especially for the poorest  |





**Figure 11. Recent directions of change in income sources**

In the scenario workshop in Ethiopia, the participants described major past trends / directions of change in the basic feature 'Income Sources' in the ASAL region, distinguishing two periods (early 1980s to early 1990s and early 1990s to today) and various sub-features (in the first column).

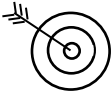




Source: own presentation



| STEP 3: Identifying and defining determining factors |   |    |
|--|---|---|
| <b>Result</b>  |  | The participants have identified and defined factors determining rural transformation in the selected country or region. A mind map of the factors is developed.  |
| <b>Methods</b>                                       |  | <ul style="list-style-type: none"> <li>➤ Brainstorming</li> <li>➤ Mind Map / Clustering</li> </ul>  |
| <b>Time</b>  |  | 180 minutes: <ul style="list-style-type: none"> <li>▪ 30 minutes for introducing the task</li> <li>▪ 150 minutes for brainstorming and mapping / clustering</li> </ul>  |
| <b>Guiding questions</b>                             |  | <ul style="list-style-type: none"> <li>➤ Which factors determine rural transformation in the country / region?</li> <li>➤ What exactly is meant by the factor?</li> </ul>   |
| <b>Hints</b>   |  | <ul style="list-style-type: none"> <li>➤ Introduce rules for the formulation of factors: A factor is formulated as a short keyword / headword (e.g. 'land degradation', 'farm-gate prices'). Good factors               <ul style="list-style-type: none"> <li>▪ use simple and clear language (see above);</li> <li>▪ are neutral (e.g. 'accessibility of basic services', not 'high' or 'low accessibility of basic services'; 'quality of governance', not 'good' or 'poor governance');</li> <li>▪ do not describe cause-effect relationships (e.g. 'land degradation leads to increased rural-urban migration').</li> </ul> </li> <li>➤ Explain that factors can be material factors or actors but that material factors are preferred. Actors can be 'translated' into material factors, e.g. "Agricultural Ministry" becomes "National agricultural policy".</li> <li>➤ Emphasise that good factors take shape in two directions (e.g. high/low, strong/weak, big/small, fast/slow). Therefore, 'climate variability' (which can be high / low) is a better factor than 'climate'; and 'sustainability of natural resource management' (that can be strong / poor) is a better factor than 'natural resource management'.</li> <li>➤ Introduce rules for the definition of factors: The factor definition clarifies what is really meant with the keyword and leads to a common understanding of a factor, e.g. if the factor reads 'internationalisation', the definition could be 'degree of market-opening'. Definitions should be one-dimensional, e.g. 'availability of ...' and 'quality of ...', but not 'availability and quality of ...'.</li> <li>➤ Allow free brainstorming on factors, i.e. do not use pre-defined categories / dimensions and do not limit the number of factors a participant can formulate. Therefore, hand out as many cards (of uniform colour) to the participants as they require.</li> </ul> |





|                       |   |  |
|-----------------------|---|--|
|                       |   | <ul style="list-style-type: none"> <li>➔ Cluster the cards, e.g. in form of a mind map, around the guiding topic in the centre of the board (several boards may become necessary, depending on the amount of cards written by the participants).</li> <li>➔ Make sure that the identified factors             <ul style="list-style-type: none"> <li>▪ have a similar level of abstraction (e.g. climate variability / population growth; intensity of rainfalls / number of children per woman);</li> <li>▪ are clearly distinguishable / independent (e.g. 'weather variability' and 'intensity of rainfalls' belong to each other / overlap).</li> </ul> </li> <li>➔ It is probable that the participants identify a large number of (sector) policies that influence rural transformation (agriculture policy, trade policy, forest policy etc.). In order to avoid doubling of issues at political and outcome levels, consider asking "How does this policy impact on the ground?". In this way, 'agricultural price policy' becomes 'farm-gate prices'. Explain to the participants that policies, regimes etc. will be considered later when discussing the key forces behind factors (STEP 10).</li> <li>➔ Make sure that all participants have the same understanding of the factors. In many cases, it is necessary to define the factor together with the participants during clustering. Write the definition on a card of a different colour and pin it together with the 'factor card' on the board.</li> </ul> |
| <b>Team</b>           |  | <ul style="list-style-type: none"> <li>➔ 1 facilitator (of the brainstorming session)</li> <li>➔ 1 presenter (of the quality criteria of factors and the rules for the definition of factors)</li> <li>➔ 2-3 co-facilitators during clustering (to rewrite cards, if necessary, and to write definitions)</li> </ul>   |
| <b>Material</b>       |  | <ul style="list-style-type: none"> <li>➔ 2-3 pin boards</li> <li>➔ 1 flipchart</li> <li>➔ 15-20 markers (or more, 1 per participant)</li> <li>➔ 110-150 white cards (or as many per participant as they need)</li> <li>➔ 50-100 yellow cards (depending on the number of definitions required)</li> <li>➔ 1 camera (to document the results)</li> </ul>  |
| <b>To be prepared</b> |  | <ul style="list-style-type: none"> <li>➔ 1 pin board with a larger card 'rural transformation' in the centre</li> </ul>  |
| <b>Documentation</b>  |  | <ul style="list-style-type: none"> <li>➔ Document the main points of feedback and discussion on group work results during the plenary session.</li> <li>➔ Photograph the presentations and brainstorming results.</li> </ul>   |

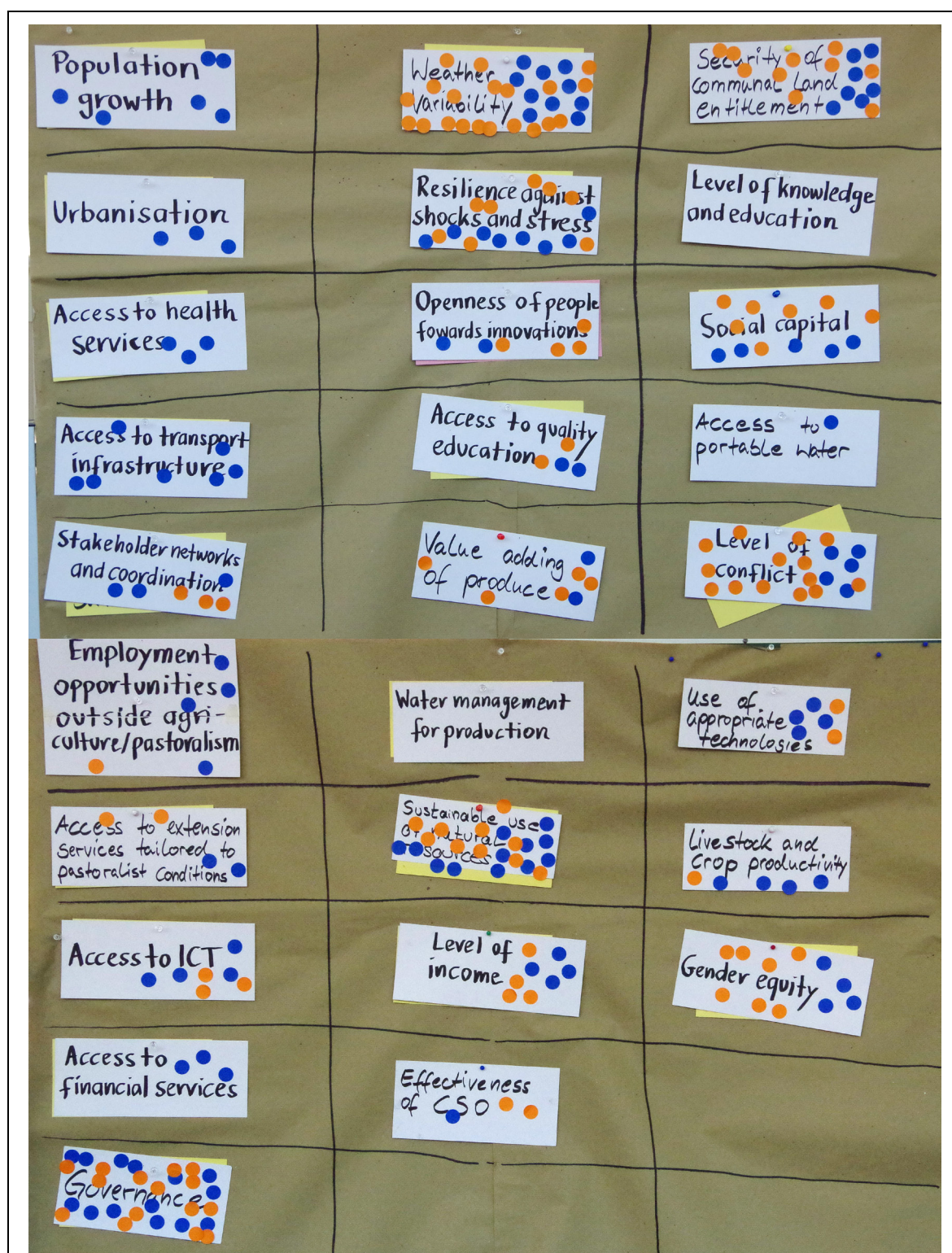
**STEP 4: Weighting and filtering of the factors**

|                          |   |   |                     |  |  |                          |  |  |  |                   |                     |
|--------------------------|---|---|---------------------|--|--|--------------------------|--|--|--|-------------------|---------------------|
| <b>Result</b>            |    | <p>The participants have jointly selected those factors that are particularly relevant for building the scenarios.</p> <p>A matrix has been developed displaying factors that are more important and less important, and factors that are rather certain and rather uncertain.</p>  |                     |  |  |                          |  |  |  |                   |                     |
| <b>Methods</b>           |    | <p>➡ Rating</p> <p>➡ Clustering</p> <p>Produce a matrix for the positioning of the factors:</p> <table border="1"> <tr> <td>Rather<br/>IMPORTANT</td><td></td><td></td></tr> <tr> <td>Rather LESS<br/>IMPORTANT</td><td></td><td></td></tr> <tr> <td></td><td>Rather<br/>CERTAIN</td><td>Rather<br/>UNCERTAIN</td></tr> </table>  | Rather<br>IMPORTANT |  |  | Rather LESS<br>IMPORTANT |  |  |  | Rather<br>CERTAIN | Rather<br>UNCERTAIN |
| Rather<br>IMPORTANT      |   |   |                     |  |  |                          |  |  |  |                   |                     |
| Rather LESS<br>IMPORTANT |   |   |                     |  |  |                          |  |  |  |                   |                     |
|                          | Rather<br>CERTAIN   | Rather<br>UNCERTAIN   |                     |  |  |                          |  |  |  |                   |                     |
| <b>Time</b>              |   | <p>105-120 minutes:</p> <ul style="list-style-type: none"> <li>▪ 60 minutes for weighting of factors</li> <li>▪ 45-60 minutes minutes for filtering of factors</li> </ul>   |                     |  |  |                          |  |  |  |                   |                     |
| <b>Guiding questions</b> |  | <p>Guiding questions to weigh the factors:</p> <ul style="list-style-type: none"> <li>➡ How important is the factor for rural transformation now and in future?</li> <li>➡ How uncertain/unpredictable is the development of the factor?</li> </ul> <p>Guiding questions to filter the factors:</p> <ul style="list-style-type: none"> <li>➡ Which factors are most important and uncertain for rural transformation?</li> <li>➡ Which factors are most important and certain for rural transformation?</li> <li>➡ Which set of factors is most relevant for building the scenarios?</li> </ul>   |                     |  |  |                          |  |  |  |                   |                     |
| <b>Hints</b>             |  | <p>➡ Introducing the first round of scoring, explain the meaning of importance to the participants: It refers to the strength of influence the factor has on rural transformation. Then give out to each participant one third as many adhesive points as there are factors to rate (in a uniform colour, e.g. blue). Give out a copy with all factors on an A4 paper to each participant and ask the participants to take some time individually for ranking 'importance' before putting their adhesive points finally on the board. Ask them to distribute them freely on the cards with the factors, but encourage them not to put more than three on one factor. Factors considered important receive point(s).</p> |                     |  |  |                          |  |  |  |                   |                     |

|  |  |
|--|--|
|  | <ul style="list-style-type: none"> <li>➔ Introducing the second round of scoring, explain the meaning of uncertainty to the participants: It refers to the unpredictability of how the factor will develop in the future. Then give out to each participant one third as many adhesive points as there are factors to rate (in a different uniform colour, e.g. red). Give out a copy with all factors on an A4 paper to each participant and ask the participants to take some time individually for ranking 'uncertainty' before putting their adhesive points finally on the board. Ask them to distribute them freely on the cards with the factors, but encourage them not to put more than three on one factor. Factors considered uncertain/unpredictable receive point(s).</li> <li>➔ The participants may face difficulties in scoring factors 'uncertain' or 'less uncertain' that are intrinsically varying, such as 'weather variability'. Explain that such factors should receive few (or no) points for 'uncertainty', if their future development – continuing, increasing, decreasing – is (rather) predictable.</li> <li>➔ Prepare the matrix. To be able to place the factors correctly, identify the highest scores on each axis (for importance and uncertainty, respectively) and choose appropriate scales on the axes.</li> <li>➔ Transfer the scored factors onto the prepared matrix. Begin with the factor that received the most points for each colour and continue until each factor is placed correctly on the matrix. Copy the factors in a smaller font size on smaller cards to avoid too much overlapping of cards that received similar scores.</li> <li>➔ Discuss the result together with the participants. Seek arguments that underpin the assignment of high or low importance and certainty or uncertainty to those factors whose positions on the matrix seem implausible.</li> <li>➔ Explain that factors in the upper right area are particularly valuable for building scenarios (multiple plausible futures): their future development is rather uncertain and at the same time they have a rather high importance for the workshop topic (rural transformation). However, together with the participants also prioritise some important factors from the upper left area, as they stabilise the system of factors influencing rural transformation.</li> <li>➔ If the participants jointly agree to shift a certain factor from one place to another place, do so.</li> <li>➔ Facilitate an agreement among the participants on a set of around 8-10 (maximum 12) factors to be part of further analysis and scenario building.</li> </ul> |
|--|--|



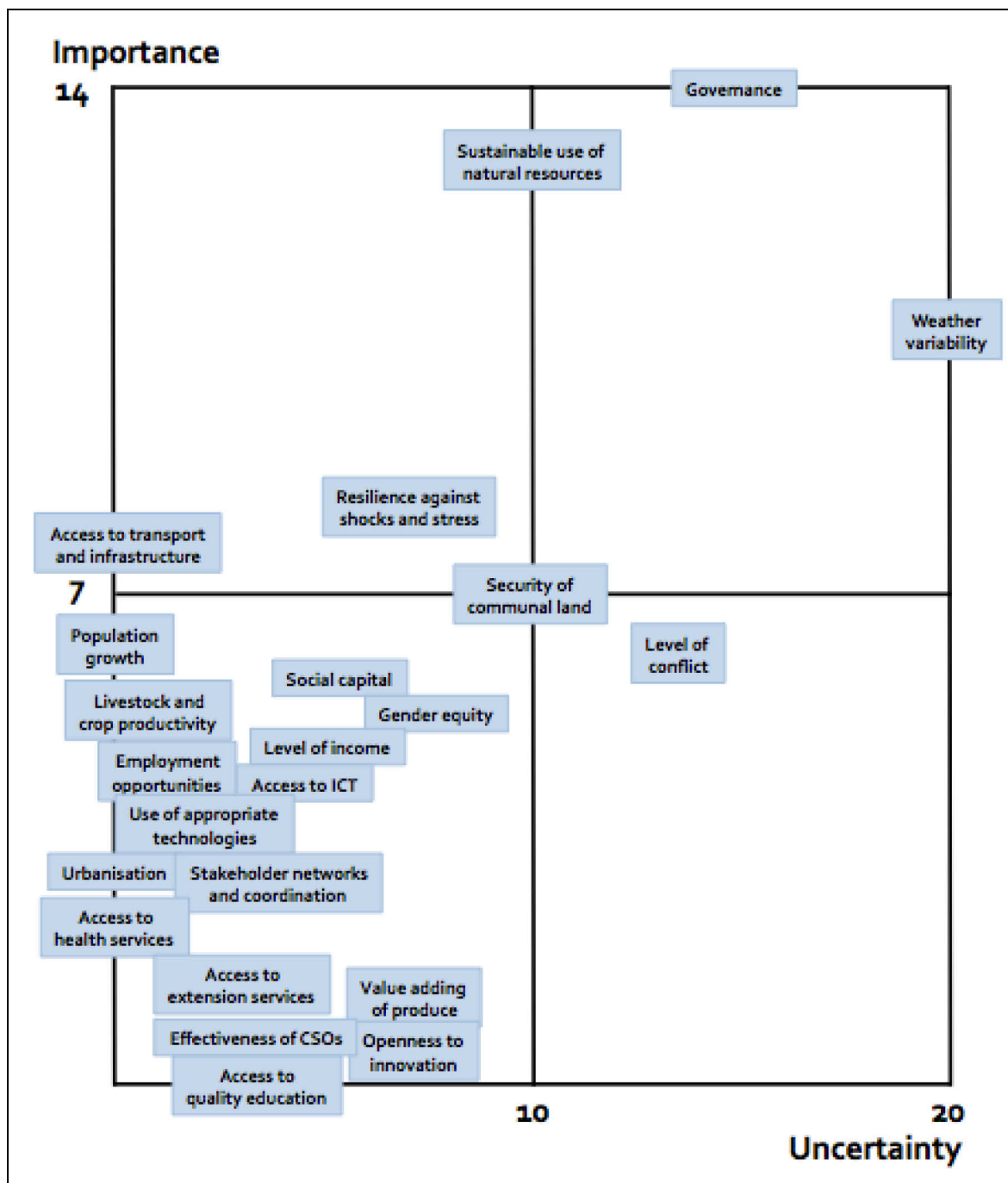
|   |  |
|---|--|
| <b>Team</b>            | <ul style="list-style-type: none"> <li>➡ 1 facilitator (of the rating and clustering session)</li> <li>➡ 1 co-facilitator (to assist during the scoring exercises)</li> <li>➡ 1-2 documenters (of the discussion on the result)</li> </ul>                               |
| <b>Material</b>        | <ul style="list-style-type: none"> <li>➡ 2-3 pin boards (1-2 for the scoring, 1 for the matrix)</li> <li>➡ up to 500 adhesive points in two colours (depending on the numbers of factors and participants)</li> <li>➡ 1 camera (to document the results)</li> </ul>      |
| <b>To be prepared</b>  | <ul style="list-style-type: none"> <li>➡ Flipchart with explanations of importance and uncertainty</li> <li>➡ Board(s) displaying the cards with factors for the scoring exercise</li> <li>➡ Board with the matrix</li> </ul>  |
| <b>Documentation</b>   | <ul style="list-style-type: none"> <li>➡ Document the main points of discussion on the scoring results and important arguments for placement and possible shifting of factors.</li> <li>➡ Photograph the result of the scoring exercise and the final matrix.</li> </ul> |



**Figure 12. Original ranking of importance and uncertainty of factors / ASAL regions**

To provide the example of an original ranking result, In the scenario workshop in Ethiopia, the participants used blue adhesive points to score 'Importance' and orange adhesive points to score 'Uncertainty'. The numbers of points were then counted and documented on the cards.

Source: SLE



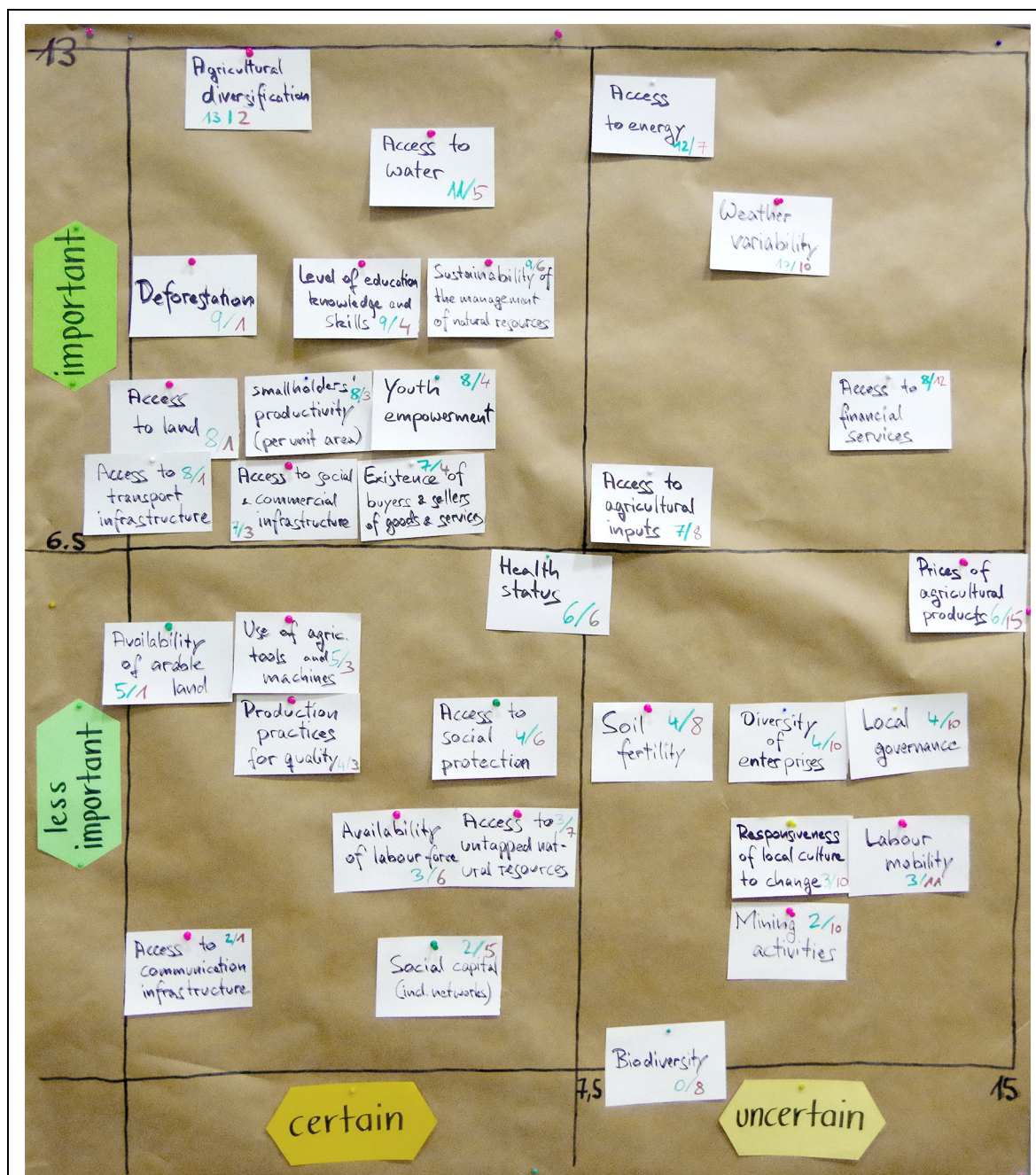
**Figure 13. Matrix of factors / ASAL region**

The scored factors were then transferred onto the matrix. The factors with the highest score for 'Importance' ('Governance': 14) and the highest score for 'Uncertainty' ('Weather variability': 20) determined the axis edges. Note: 'Access to financial services' received the same scores as 'Access to health services' and 'Access to potable water', 'Level of knowledge and education' and 'Water management for production received zero scores.

After intense deliberations, the workshop participants selected the following ten factors as key determinants of rural transformation in ASAL region: 'Governance'; 'Sustainable Use of Natural Resources'; 'Weather Variability'; 'Resilience against Shocks and Stress'; 'Access to Transport and Infrastructure'; 'Security of Communal Land'; 'Population In-Migration' (instead of 'Growth'; 'Level of Conflict'; 'Social Capital'; and 'Livestock and Crop Productivity'.

Source: own presentation





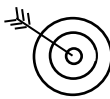


**Figure 14. Original matrix of factors / Zambia**





To provide the example of an original matrix, in the scenario workshop in Zambia the factors with the highest score for 'Importance' ('Agricultural Diversification': 13) and the highest score for 'Uncertainty' ('Prices of Agricultural Products': 15) determined the axis edges. After intense deliberations, the workshop participants selected the following ten factors as key determinants of rural transformation in Zambia: 'Access to Energy'; 'Access to Financial Services'; 'Access to Water'; 'Sustainability of the Management of Natural Resources'; 'Level of Education, Knowledge and Skills'; 'Smallholders' Productivity'; 'Youth Empowerment'; 'Access to Agricultural Inputs'; 'Health Status'; and 'Prices of Agricultural Products'.

Source: SLE

## STEP 5: Describing variations of the key factors



| Result              |  | <p>For each selected key factor, the participants have described two to three possible variations that are realistic, i.e. within the probability space of the time horizon (here: until 2030). At first with a concrete key word, afterwards with a more precise description (attributes, indicators).</p> <p>A matrix displaying the factors and their variations is developed.</p>  |                     |                                    |                                    |                                    |                  |                  |                  |
|---------------------|---|--|---------------------|------------------------------------|------------------------------------|------------------------------------|------------------|------------------|------------------|
| Method              |  | <p>➡ Visioning</p> <p>For each factor, produce the following table (on a flipchart sheet):</p> <table><tr><th rowspan="2">Factor:<br/>(Insert)</th><th>(Insert key word /<br/>variation A)</th><th>(Insert key word /<br/>variation B)</th><th>(Insert key word /<br/>variation C)</th></tr><tr><th>Insert narrative</th><th>Insert narrative</th><th>Insert narrative</th></tr></table>   | Factor:<br>(Insert) | (Insert key word /<br>variation A) | (Insert key word /<br>variation B) | (Insert key word /<br>variation C) | Insert narrative | Insert narrative | Insert narrative |
| Factor:<br>(Insert) | (Insert key word /<br>variation A)  | (Insert key word /<br>variation B)   |                     | (Insert key word /<br>variation C) |                                    |                                    |                  |                  |                  |
|                     | Insert narrative  | Insert narrative   | Insert narrative    |                                    |                                    |                                    |                  |                  |                  |
| Time                |  | <p>135 minutes:</p> <ul style="list-style-type: none"><li>▪ 15 minutes for introduction</li><li>▪ 75 minutes for working groups</li><li>▪ 45 minutes for presentation and discussion of group work results</li></ul>   |                     |                                    |                                    |                                    |                  |                  |                  |
| Guiding questions   | ???   | <p>➡ What shapes can the factor possibly take in the future (in the chosen time horizon; here: 2030)?</p> <p>➡ How can these variations be described in brief?</p>   |                     |                                    |                                    |                                    |                  |                  |                  |
| Hints               | !!  | <p>➡ Explain that the factors may take different shapes in the future. Provide a good example of a factor and three variations it can have. Explain that it is important to describe situations ('What does it look like in 2030?'), not cause-effect relationships.</p> <p>➡ Revisit the definitions of the key factors and make sure that all participants have the same understanding of them. Redefine factors, if required.</p> <p>➡ Form and facilitate 3-4 sub-groups to work on the variations of a certain number of factors. Do not necessarily follow the same trend from left to right (improvement, stable, worsening or the other way round).</p> <p>➡ Facilitating the sub-groups, encourage the participants to qualify the factor as far as possible in regard to social inclusion/exclusion and environmental sustainability/ non-sustainability (e.g. 'access improved <b>for all strata of rural society</b>', 'access to <b>renewable</b> sources of energy improved') and, if possible, indicate values of the factors (e.g. '30%').</p> <p>➡ Note that the number of variations does not have to be the same for all factors, as some factors may only have two possible variations (e.g. law enacted / not enacted).</p> |                     |                                    |                                    |                                    |                  |                  |                  |

|                       |   |  |
|-----------------------|---|--|
|                       |   | <ul style="list-style-type: none"> <li>➔ Together with the participants, choose a metaphor for each scenario.</li> </ul>   |
| <b>Team</b>           |  | <ul style="list-style-type: none"> <li>➔ 1 facilitator (of the plenary sessions)</li> <li>➔ 3-4 facilitators (of working groups)</li> <li>➔ 1 documenter (of comments on the group work results)</li> </ul>                          |
| <b>Material</b>       |  | <ul style="list-style-type: none"> <li>➔ 10 (or more) flipchart papers</li> <li>➔ 1 camera (to document the results)</li> </ul>  |
| <b>To be prepared</b> |  | <ul style="list-style-type: none"> <li>➔ Flipchart paper with an example of a factor and its variations</li> <li>➔ Flipchart papers with prepared tables (1 per factor)</li> </ul>   |
| <b>Documentation</b>  |  | <ul style="list-style-type: none"> <li>➔ Document the main points of discussion on the group work results and suggestions for reformulation of variations or additions.</li> <li>➔ Photograph the result of the exercise.</li> </ul> |

| Factor  | Definition   | Variations        |
|---|--|-------------------|
| <b>Weather variability</b>                    | Uncertainty of weather patterns (rain, temperature)  | high - low        |
| <b>Resilience against shocks and stress</b>   | Coping capabilities to resist external shocks (climatic, economic, conflict)   | high - low        |
| <b>Social capital</b>                         | Ability to act collectively and to cooperate on the basis of reciprocity, social safety nets, trust  | high - low        |
| <b>Governance</b>                             | People's participation in decisions that affect their interests (Aspects: inclusiveness, accountability and transparency, responsiveness, rule of law, legitimacy) | high - low        |
| <b>Security of communal land</b>              | Degree of recognition and protection of traditional land management systems  | high - low        |
| <b>Sustainable use of natural resources</b>   | Use of natural resources that does not compromise future generations   | common - uncommon |
| <b>Livestock and crop productivity</b>        | Output per unit animal or land   | high - low        |
| <b>Access to transport and infrastructure</b> | Physical access the ASAL population has to markets etc.  | high - low        |
| <b>Population in-migration</b>                | Number of immigrants to pastoral areas   | high - low        |
| <b>Level of conflict</b>                      | Scale and intensity of conflict  | high - low        |

### Figure 15. Definition of factors

In the scenario workshop in Ethiopia, the definitions of the selected key factors determining rural transformation in the ASAL region were finally agreed and checked for their general suitability to describe variations, before describing possible variations in detail.

Source: own presentation

| Variation                                      | improving   | remaining the same  | worsening   |
|--|---|---|---|
| Factor: Access to transport and infrastructure | Road networks are expanded (all wareda and kebeles are interconnected). We see regularly maintained roads (less potholes) and more service-providing businesses (restaurants, hotels, discos). There is more petty trade. Transportations are affordable. We see buses, lorries, etc. frequently passing and reopened and expanded airstrips. | Poor transport infrastructure (more people, the same roads), same facility, poor maintenance. Women are carrying heavy loads on their backs. Pastoralist travel long distances by foot. More demand – same supply increases costs of transport services. There is less access to markets and social services. | Roads and road services are deteriorated. More pressure on less roads than today. Pastoralist areas are more isolated from the outside world. Poor health, education and other social services. Businesses close and migrate. Generally more out-migration to better areas. Ultimately increased poverty. People have to live on milk because they cannot buy food in town. |
|  | <i>Ifo</i><br>(light)   | <i>Haratu</i><br>(let it be as it is)   | <i>Dukana</i><br>(dark)   |

**Figure 16. Variations of the factor 'Access to Transport and Infrastructure' / ASAL region**

In the scenario workshop in Ethiopia, one working group described three realistic variations of the factor 'Access to Transport and Infrastructure' and assigned metaphors to each of them ('Light'; 'Let it be as it is'; 'Dark').

Source: own presentation

| Variation                          | A: Continuing   | B: Improved   | C: Worsened  |
|------------------------------------|---|---|--|
| Factor: Smallholders' productivity | Yields per unit area / input of smallholder farmers continue to be below the potential yield of existing crop varieties / livestock breeds. Compared to large-scale farmers, productivity is low. | Yields per unit area / input of smallholder farmers have improved significantly above the current levels. Smallholder farmers adopt improved technologies, i.e. use of improved seed varieties and farm practices such as conservation farming, timely weeding and proper use of fertilizers. | Yields per unit area / input of smallholder farmers have dropped significantly below the current levels. Smallholder farmers have less access to farming inputs such as improved seed varieties and fertilizers. They cannot cope with weather variability and experience worsened labour constraints. |

**Figure 17. Variations of the factor 'Smallholders' Productivity' / Zambia**

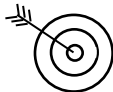




In the scenario workshop in Zambia, one working group described three realistic variations of the factor 'Smallholders' Productivity'.





Source: own presentation



## STEP 6: Developing narrative linear scenarios



| Result             |    | The participants have developed at least two possible scenarios of rural transformation – a most probable and an optimistic scenario, plus a pessimistic scenario if desired – considering the key factors and their possible variations. Narratives of the scenarios have been produced.   |                    |             |             |             |          |      |      |      |          |      |      |      |          |      |      |      |          |      |      |      |
|--------------------|---|---|--------------------|-------------|-------------|-------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| Method             |    | <div>➡ Narration</div> <div>Produce the following matrix:</div> <table><tr><th>Variations Factors</th><th>Variation A</th><th>Variation B</th><th>Variation C</th></tr><tr><td>Factor C</td><td>text</td><td>text</td><td>text</td></tr><tr><td>Factor A</td><td>text</td><td>text</td><td>text</td></tr><tr><td>Factor B</td><td>text</td><td>text</td><td>text</td></tr><tr><td>Factor D</td><td>text</td><td>text</td><td>text</td></tr></table> <div><div></div> “most probable” scenario</div> <div><div></div> “optimistic” scenario</div> <div><div></div> “pessimistic” scenario</div>  | Variations Factors | Variation A | Variation B | Variation C | Factor C | text | text | text | Factor A | text | text | text | Factor B | text | text | text | Factor D | text | text | text |
| Variations Factors | Variation A   | Variation B   | Variation C        |             |             |             |          |      |      |      |          |      |      |      |          |      |      |      |          |      |      |      |
| Factor C           | text  | text  | text               |             |             |             |          |      |      |      |          |      |      |      |          |      |      |      |          |      |      |      |
| Factor A           | text  | text  | text               |             |             |             |          |      |      |      |          |      |      |      |          |      |      |      |          |      |      |      |
| Factor B           | text  | text  | text               |             |             |             |          |      |      |      |          |      |      |      |          |      |      |      |          |      |      |      |
| Factor D           | text  | text  | text               |             |             |             |          |      |      |      |          |      |      |      |          |      |      |      |          |      |      |      |
| Time               |  | 60-90 minutes (30 minutes per scenario)   |                    |             |             |             |          |      |      |      |          |      |      |      |          |      |      |      |          |      |      |      |
| Guiding questions  |  | <div>➡ What shape will the factors take to describe a probable scenario of rural transformation in the country or region until 2030 (most probable scenario)?</div> <div>➡ What shape will the factors have to take to describe the scenario of a socially inclusive and environmentally sustainable rural transformation in the country or region until 2030 (optimistic scenario)?</div> <div>➡ What shape will the factors have to take to describe the scenario of a socially and environmentally catastrophic rural transformation in the country until 2030 (pessimistic scenario)?</div> |                    |             |             |             |          |      |      |      |          |      |      |      |          |      |      |      |          |      |      |      |
| Hints              |  | <div>➡ Bring the factors (with their possible variations described in Step 5) in an order that will produce a meaningful story.</div> <div>➡ Asking the first guiding question to the participants, start with the development of a ‘most probable’ scenario. Use a coloured marker, e.g. blue, to connect the variations the participants consider most likely. Read aloud the resulting scenario and encourage the participants to invent a metaphor for this scenario.</div>   |                    |             |             |             |          |      |      |      |          |      |      |      |          |      |      |      |          |      |      |      |

|                       |   |   |
|-----------------------|---|---|
|                       |   | <ul style="list-style-type: none"> <li>➔ Then continue with the second guiding question and develop an 'optimistic' scenario, asking the participants to be realistic given the probability space and time horizon of the scenario. In case of dissenting opinions, try to facilitate a consensus; otherwise, record them by a separate line. Use a marker of different colour, e.g. green, to connect the variations the participants consider most desirable. Read aloud the resulting scenario and encourage the participants to invent a metaphor for this scenario.</li> <li>➔ Likewise, if time permits and participants wish develop a 'pessimistic' scenario, connecting the variations the participants consider most undesirable with a marker of different colour, e.g. red.</li> <li>➔ Beware that certain variations can be part of more than one scenario.</li> <li>➔ It is possible that the participants consider the 'most probable' and the 'pessimistic' scenario identical. In this case, consider narrating a 'desirable' and an 'undesirable' scenario.</li> <li>➔ Concluding the development of narrative linear scenarios, consider returning to the major macro-trends and directions of change identified in STEP 2 and ask the participants what the scenarios will mean for the future direction of change of the basic features, e.g.: If the optimistic, socially inclusive and environmentally sustainable scenario comes true, how will people in rural areas live and act economically (e.g. forms of migration)?</li> </ul> |
| <b>Team</b>           |  | <ul style="list-style-type: none"> <li>➔ 1 facilitator</li> <li>➔ 1 documenter (of comments on the scenarios)</li> </ul>  |
| <b>Material</b>       |  | <ul style="list-style-type: none"> <li>➔ 5 (or more) pin boards, depending on the number of flipchart papers with factors and variations (alternatively, area on the wall)</li> <li>➔ 3 markers of different colours</li> <li>➔ 1 camera (to document the result)</li> </ul>  |
| <b>To be prepared</b> |  | <ul style="list-style-type: none"> <li>➔ Pin boards (or wall area) with the matrix of factors and their variations</li> <li>➔ Flipchart papers with the factors and their variations (1 per factor)</li> </ul>  |
| <b>Documentation</b>  |  | <ul style="list-style-type: none"> <li>➔ Document the main points of discussion on the scenarios.</li> <li>➔ Photograph the result of the exercise.</li> <li>➔ Type the scenarios and provide them as hand-outs for the participants.</li> </ul>  |

The participants in the scenario workshop in Zambia described three linear scenarios:

| Factors                                    | Variation A  | Variation B  | Variation C  |
|--|--|--|--|
| <b>Access to agricultural inputs</b>       | <b>Current:</b> Supply continues to be irregular and unpredictable, coming at wrong times. In some places, supply is unreachable   | <b>Improving:</b> There is affordable, easily accessible and timely supply of agro-inputs.   | <b>Worsening:</b> Access is increasingly limited, as prices increase and supply is poor.   |
| <b>Access to financial services</b>        | <b>Current:</b> Financial facilities are available, but distant and inadequate. Financial services are inadequate.   | <b>Improving:</b> Access to financial services (mobile money and banking, etc.) is improved.   | <b>Worsening:</b> Access to financial services is limited further. Higher interest rates discourage potential borrowers.   |
| <b>Access to energy</b>                    | <b>Continuing:</b> Access to energy continues to be poor. Most households have no access to electricity.   | <b>Increasing:</b> Investment in various energy sources improve access to energy. An increased number of rural households has access to electricity.   | <b>Worsening:</b> The dependency on wood-based fuels increases. Deforestation reaches critical levels.   |
| <b>Prices of agricultural products</b>     | <b>Current:</b> Low farm-gate prices make it difficult for farmers to meet their basic needs.  | <b>Improving:</b> Cost-reflective prices spur production and improvement in agro-products. Increased bargaining power and crop diversity allow farmers to realise better prices.   | <b>Worsening:</b> Farm-gate prices decline further. Farmers are discouraged from participating in agriculture.   |
| <b>Sustainability of natural resources</b> | <b>Current:</b> Harvesting of (wood) forest products continues to increase. Clearance of forest (for mining, farming, through road and settlement construction) is increasing. Underground water is being tapped. Watershed disturbance continues to be high (construction, mining). Soil fertility depletion continues unabated (bad agricultural practices, overuse of chemicals. Encroachment on and poaching in national parks is increasing. Exploitation of minerals continues with unsustainable mining methods leading inter alia to pollution. Overfishing and bad fishing methods continues to deplete water bodies. | <b>Improving:</b> National tree planting programmes lead to forest restocking. Fish restocking programmes and aquaculture promotion lead to more sustainable use of aquatic resources. Restocking of national parks is successful. Overall resource management becomes more sustainable through community management of wildlife/national parks, forestry and improved watershed management. Mining operations are controlled properly thus reducing negative impacts. | <b>Worsening:</b> Desertification is eminent and landscape is destroyed beyond restoration. Loss of biodiversity leads to the extinction of species, depletion of stocks, loss of soil fertility and increased pollution (SO <sub>2</sub> ). Ground water and formerly perennial streams dry up. |

|  |   |   |   |
|--|---|---|---|
| <b>Youth empowerment</b>   | <b>Increasing:</b> The youth is increasingly empowered. There are high levels of civic awareness. Governmental and other stakeholders' programmes are implemented.  | <b>Current:</b> Youth empowerment remains low. However, efforts are undertaken to address negative trends of the past   | <b>Worsening:</b> Youth empowerment is worsening. A fast growing young population outstrips governmental and other stakeholders' efforts for youth empowerment  |
| <b>Health status</b>   | <b>Improving:</b> The health status of the population is further improving. People have access to health facilities and drugs.  | <b>Current:</b> The health status of the population remains at current levels. Health facilities are available, but personnel are inadequate, distances are long and medicines are insufficient.  | <b>Worsening:</b> The health status of the population is worsening. Medicine is largely unavailable, equipment is obsolete, as is infrastructure.   |
| <b>Level of practical knowledge and skills</b>   | <b>Worsening:</b> The levels of practical skills are decreasing. The demand for practical skills training outstrips the available training facilities.  | <b>Stable:</b> Levels of practical skills continue to be low. Access to vocational training colleges and to practical training in public schools is limited.  | <b>Improving:</b> The levels of practical skills are increasing. Youth has access to training facilities and has increased awareness of skills that can lead to self-employment.  |
| <b>Access to water (for productive purposes)</b>   | <b>Continuing:</b> Most rural households have no access to irrigation facilities. They depend on rainfall for agriculture (crop/livestock) production   | <b>Increasing:</b> Most rural households have access to irrigation facilities. They reduce their dependency on rainfall for agricultural production.  | <b>Worsening:</b> An increasing number of households have no access to water for irrigation, reducing agricultural production and productivity.   |
| <b>Smallholders' productivity</b>  | <b>Current:</b> Yield per unit area/input of smallholder farmers continue to be below the potential yield of existing crop variety/livestock breed. Compared to large-scale farmers, productivity is low. | <b>Improved:</b> Yield per unit area/input of smallholder farmers has improved significantly above the current levels. Smallholder farmers adopt improved technologies i.e. use of improved seed varieties and farming practices such as conservation farming, timely weeding and planting and proper use of fertilizers. | <b>Worsening:</b> Yield per unit area/input of smallholder farmers has dropped significantly below the current levels. Smallholder farmers have less access to farming inputs such as improved seed varieties and fertilizers. They cannot cope with weather variability and experience worsening labour constraints. |
| <div> <div>Most probable:<br/>"Ifiintu Ta Fili Bwino" (Things aren't OK)</div> <div>Optimistic:<br/>"Ili Che!" (Cool!)</div> <div>Pessimistic:<br/>"Yazanda" (Serious problem!)</div> </div> |   |   |   |

**Figure 18. Three linear scenarios of Zambia 2030**

Source: own presentation

| Undesirable scenario<br>of ASAL region in 2030:  | Desired scenario<br>of ASAL region in 2030:  |
|--|--|
| Severe droughts alternate with torrential rains. Together with periods of extremely high temperatures, life has become almost unbearable, barren lands cover large parts of the region. Calamities happen frequently, and international support is weak. National actions to improve resilience have failed, the resilience power of people and communities has cracked.   | Full global commitment to climate change is reflected in access to adaptation funds, among others. Negative trends in weather variability could be stopped. Rainfalls are more predictable, average temperatures have almost stabilised, though at a high level. People and communities cope easily with climate-induced shocks and stresses, making full and optimised use of natural and human potentials.   |
| Common values of the pastoralist population have further eroded. Internal conflicts are frequent and people make selfish and unsustainable use of natural resources. A few better-off make profit, others abandon the region, but the majority of people remain, living in destitution. Dual loyalties have torn apart traditional institutions. Bargaining power and viability of pastoralism have diminished. Investors and government can take more land, endangering the pastoral system and causing resource-based conflicts. | Pastoralism and the livelihood and way of life of pastoralists show strength and viability. Pastoralists have strong <b>own</b> institutions of which some are traditional and some are new. They develop common solutions/decisions for their problems and have a strong identity. They foster their interactions. They have strong bargaining power and ability to influence national policy. Traditional land management systems are formally recognised and protected. Degraded land is rehabilitated and the whole land management system is highly resilient towards external shocks and stresses. |
| Dry season grazing areas have been taken over by expansion of large-scale commercial farms and unwanted plant species. Grazing areas are severely degraded and we can see widespread poverty and destitution.  | High level of awareness in communities, strong government policies on natural resource management, and the scaling-up of good experiences have translated into practice. We see improved pastures, increased forest coverage, and enhanced soil fertility.   |
| In government, forces of resistance to change are still strong. Budget allocations to key sectors such as education have improved, but the provision of basic services is still poor overall. Local officials are selling community land, officials are living beyond their means, and bribery, nepotism and fraud are still there.  | All people (including women and vulnerable groups) have voice in decision-making that affects their lives directly or indirectly (regarding, e.g. the use of water points, grazing lands, veterinary services). All decisions made are based on people's interests, aspirations and preferences. Officials and leaders are accountable and held accountable, the Government is committed, and everyone is equal in front of the law. Women and minorities serve as civil servants in offices and are represented in local councils.  |

| Undesirable scenario<br>of ASAL region in 2030:  | Desired scenario<br>of ASAL region in 2030:   |
|--|---|
| Barren lands and livestock numbers and productivity do not suffice for survival. We can see high food insecurity in the region.  | There are booming livestock markets in the region and livestock products realise high prices. Government and NGOs give much attention to livestock and pastoralists. Farmers, agro-pastoralists and pastoralists are using adapted improved technologies and have increased productivity (per unit land or animal). |
| Most roads and road services are deteriorated; there is more pressure on fewer roads and pastoralist areas are more isolated from outside world than ever before. Other physical infrastructure (communications, electricity etc.) is still underdeveloped. Businesses have closed and left the region, we can generally see a lot of people migrating to better areas. Pastoralists have to live on milk as they cannot buy food in town. | Roads interconnect all Waredas and Kebeles. We see few potholes and frequently passing buses, mini buses, lorries etc., a lot of service provision, businesses (restaurants and hotels, agro-processing etc.) and petty trade, and a network of re-opened or new airstrips.   |
| The whole regional and local stability is weak, also because of increased in-migration. Competition for diminishing resources turns into violent conflicts. We can see large numbers of displaced people.  | Conflicts in pastoral areas are managed inter-regionally and intra-regionally. There is low and controlled in-migration and we can see few casualties and internally displaced people. People are coming closer together, and social cohesion is strong.  |
| <p><b>Figure 19. Undesirable and desirable linear scenarios of the ASAL region in Ethiopia 2030</b></p> <p>The participants of the scenario workshop in Ethiopia narrated two linear scenarios of the arid and semi-arid lands (ASAL) region in 2030 along the factors and their variations: a most probable and at the same time pessimistic ('Undesirable') and an optimist ('Desirable') scenario.</p> <p>Source: own presentation</p>  |   |

The development plans are more inclusive and favour the valorisation of local resources, promoting excellence and social peace. The development actions are more consistent and developed in a participatory and transparent way. Better governance affects many factors influencing the livelihoods in rural areas.

Demographic dynamics remain stable at a high growth rate of 3.5%. These dynamics are anticipated and taken into account by the plans of municipal development. The government previews land allocations, a development of infrastructures and thanks to improved education facilities the young people have become a force of development and put less pressure on natural resources.

The texts and laws referring to the management of natural resources are reinforced, popularised, and applied. People adopt practices of sustainable exploitation and enjoy high soil fertility and quality of water and other natural resources, and improved living conditions in general.

The agricultural orientation law is targeted at the needs of the entire population including small producers. It is accepted and endowed with natural resources. The participatory management of the territory is strong, which reinforces the inclusion of the whole population with positive feedback effects on governance.

Following the construction of new dams respecting social and environmental standards and thanks to the development of renewable sources of energy, access, availability and reliability of energy is good. The households use more environmentally clean sources of energy, as well as more efficient technologies.

Rural land tenure plans are better applied and popularised in all regions of the country and local populations are aware of opportunities that this represents. Ownership and usage of land are more secure and therefore the soil resources are better valorised and the long term is part of considerations of the producers.

Thanks to an agricultural policy oriented toward the needs of small producers and thanks to a professionalisation of the microfinance sector and of microfinance institutions (MFIs) and because the State plays its role as regulator, financial products adapted for smallholders are also accessible. The availability of land titles encourages MFIs to settle in rural areas, because they can be used as guarantees for the granting of credits.

A more intelligent, innovative and appropriate agriculture is developed and popularised with the assistance of research and development institutions. It is adopted by small producers, who enjoy higher productivity and income. This intelligent agriculture is adapted / resilient to climate variabilities.

An improved market access entails an accessibility of quality inputs and an opening up of production areas which allows a valorisation of their production and the income of these farmers is on the rise.

All these developments as well as other measures of professionalisation of the sector have led to an increase in the use of appropriate fertilizers and pesticides. Combined with other measures it increases soil productivity.

The increase in productivity has led to a market orientation of producers and further increases their income. On the whole the economic activities are intensified and the living conditions of the populations are improved.

### **Figure 20. Linear inclusive and sustainable scenario of Benin 2030**

The participants of the scenario workshop in Benin narrated an optimistic ('inclusive and sustainable') linear scenario in 2030 along the factors and their variations.

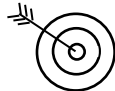




Source: own presentation









## STEP 7: Assessing mutual influences of the factors



|                   |   |  |   |     |                 |   |     |                 |          |  |  |  |  |  |          |  |  |  |  |  |          |  |  |  |  |  |            |  |  |  |  |  |                  |  |  |  |  |  |         |  |  |  |  |  |
|-------------------|---|--|---|-----|-----------------|---|-----|-----------------|----------|--|--|--|--|--|----------|--|--|--|--|--|----------|--|--|--|--|--|------------|--|--|--|--|--|------------------|--|--|--|--|--|---------|--|--|--|--|--|
| Result            |    | <p>The participants have assessed</p> <ul style="list-style-type: none"><li>the degree of influence each key factor determining rural transformation has on all other factors;</li><li>the degree of sensitivity each factor has towards all other factors;</li><li>the cumulative degree of influence of each factor in the system;</li><li>the cumulative degree of sensitivity of each factor in the system;</li><li>the functional character of each factor in the system as a whole.</li></ul>  |   |     |                 |   |     |                 |          |  |  |  |  |  |          |  |  |  |  |  |          |  |  |  |  |  |            |  |  |  |  |  |                  |  |  |  |  |  |         |  |  |  |  |  |
| Method            |    | <p>➡ Influence Matrix</p> <p>Produce the following matrix:</p> <table><tr><td></td><td>A</td><td>B</td><td>C</td><td>...</td><td>Active Sum (AS)</td></tr><tr><td>Factor A</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Factor B</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Factor C</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Factor ...</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Passive Sum (PS)</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>AS x PS</td><td></td><td></td><td></td><td></td><td></td></tr></table>  |   | A   | B               | C | ... | Active Sum (AS) | Factor A |  |  |  |  |  | Factor B |  |  |  |  |  | Factor C |  |  |  |  |  | Factor ... |  |  |  |  |  | Passive Sum (PS) |  |  |  |  |  | AS x PS |  |  |  |  |  |
|                   | A   | B  | C | ... | Active Sum (AS) |   |     |                 |          |  |  |  |  |  |          |  |  |  |  |  |          |  |  |  |  |  |            |  |  |  |  |  |                  |  |  |  |  |  |         |  |  |  |  |  |
| Factor A          |   |  |   |     |                 |   |     |                 |          |  |  |  |  |  |          |  |  |  |  |  |          |  |  |  |  |  |            |  |  |  |  |  |                  |  |  |  |  |  |         |  |  |  |  |  |
| Factor B          |   |  |   |     |                 |   |     |                 |          |  |  |  |  |  |          |  |  |  |  |  |          |  |  |  |  |  |            |  |  |  |  |  |                  |  |  |  |  |  |         |  |  |  |  |  |
| Factor C          |   |  |   |     |                 |   |     |                 |          |  |  |  |  |  |          |  |  |  |  |  |          |  |  |  |  |  |            |  |  |  |  |  |                  |  |  |  |  |  |         |  |  |  |  |  |
| Factor ...        |   |  |   |     |                 |   |     |                 |          |  |  |  |  |  |          |  |  |  |  |  |          |  |  |  |  |  |            |  |  |  |  |  |                  |  |  |  |  |  |         |  |  |  |  |  |
| Passive Sum (PS)  |   |  |   |     |                 |   |     |                 |          |  |  |  |  |  |          |  |  |  |  |  |          |  |  |  |  |  |            |  |  |  |  |  |                  |  |  |  |  |  |         |  |  |  |  |  |
| AS x PS           |   |  |   |     |                 |   |     |                 |          |  |  |  |  |  |          |  |  |  |  |  |          |  |  |  |  |  |            |  |  |  |  |  |                  |  |  |  |  |  |         |  |  |  |  |  |
| Time              |  | 300-400 minutes (depending on the number of factors, 30-35 minutes per row)  |   |     |                 |   |     |                 |          |  |  |  |  |  |          |  |  |  |  |  |          |  |  |  |  |  |            |  |  |  |  |  |                  |  |  |  |  |  |         |  |  |  |  |  |
| Guiding questions |  | <ul style="list-style-type: none"><li>➡ How much do all key factors determining rural transformation influence each other?</li><li>➡ How sensitive are the factors?</li></ul>  |   |     |                 |   |     |                 |          |  |  |  |  |  |          |  |  |  |  |  |          |  |  |  |  |  |            |  |  |  |  |  |                  |  |  |  |  |  |         |  |  |  |  |  |
| Hints             |  | <ul style="list-style-type: none"><li>➡ Transfer those factors that were prioritised in STEP 4 and used in STEP 5 and STEP 6 onto the prepared matrix. The matrix can either be displayed on a pin board or on a computer (e.g. Excel® sheet).</li><li>➡ Start with the first factor, asking: <b>Does Factor A have a direct influence on Factor B?</b> If the participants' answer is 'no', put 0. If the answer is 'yes', ask: <b>Is this influence rather minor or rather strong?</b> If the answer is 'minor', put 1; if the answer is 'strong', put 2. Then ask: <b>What are practical examples that support your assessment?</b> Record their answers. Continue in the same way with all factors down the first row of the matrix.</li><li>➡ Continue with the second row of the matrix (Factor B), asking the same questions (Does Factor B have an influence on Factor A? etc.). Continue in the same way with all factors along the columns. Avoid any deviations from the prescribed phrasing of the questions, since the consistency of the assessment will be negatively affected otherwise.</li></ul> |   |     |                 |   |     |                 |          |  |  |  |  |  |          |  |  |  |  |  |          |  |  |  |  |  |            |  |  |  |  |  |                  |  |  |  |  |  |         |  |  |  |  |  |

|                       |   |  |
|-----------------------|---|--|
|                       |   | <ul style="list-style-type: none"> <li>➔ Have the definitions of factors agreed on in STEP 3 at hand, as they help the participants to assess the influences properly.</li> <li>➔ Beware that participants may tend not to attribute a zero (i.e. no influence); explain that zero (0) is a valid statement and does not diminish the factor, and that the influence has to be direct to receive a score of 1.</li> <li>➔ Once the last row is completed, calculate row by row the sum of scores of each factor (active sum). Explain that this shows the cumulative degree of influence the factors have.</li> <li>➔ Column by column, calculate the scores of each factor (passive sum). Explain that this shows the cumulative degree of sensitivity/influenceability the factors have.</li> <li>➔ For each factor, multiply the active with the passive sum. Explain that this shows the functional character of the factors within the system.</li> <li>➔ Discuss the results with the participants: Are there surprising results? Does the result seem plausible overall?</li> </ul> |
| <b>Team</b>           |   | <ul style="list-style-type: none"> <li>➔ 1 facilitator</li> <li>➔ 1 co-facilitator (to take over facilitation from time to time or alternate with the facilitator row by row)</li> <li>➔ 2 documenters (of arguments underpinning the assessments)</li> </ul>  |
| <b>Material</b>       |  | <ul style="list-style-type: none"> <li>➔ 1 pin board (alternatively, 1 computer and a large screen)</li> <li>➔ 1 marker</li> <li>➔ 1 camera (to document the result)</li> </ul>  |
| <b>To be prepared</b> |  | <ul style="list-style-type: none"> <li>➔ Pin board with the Influence Matrix on brown paper (alternatively, Excel® sheet on a computer)</li> </ul>   |
| <b>Documentation</b>  |  | <ul style="list-style-type: none"> <li>➔ Note all important arguments, assumptions, explanations and substantiations used in the discussion, which explain the assessment of influences.</li> <li>➔ Photograph the result of the exercise.</li> </ul>  |

| Influence Matrix  |  |    |   |     |     |     |     |     |     |    |     |            |
|-------------------|--|----|---|-----|-----|-----|-----|-----|-----|----|-----|------------|
|                   | Factors                                | A  | B | C   | D   | E   | F   | G   | H   | I  | J   | Active Sum |
| A                 | Weather variability                    |    | 2 | 1   | 1   | 0   | 2   | 2   | 1   | 1  | 2   | 12         |
| B                 | Resilience against shocks and stress   | 0  |   | 1   | 0   | 0   | 2   | 1   | 1   | 0  | 1   | 6          |
| C                 | Social Capital                         | 0  | 2 |     | 2   | 2   | 2   | 2   | 1   | 1  | 2   | 14         |
| D                 | Governance                             | 0  | 2 | 2   |     | 2   | 2   | 2   | 2   | 1  | 2   | 15         |
| E                 | Security of communal land entitlement  | 0  | 2 | 2   | 1   |     | 2   | 2   | 1   | 1  | 2   | 13         |
| F                 | Sustainable use of natural resources   | 1  | 2 | 2   | 1   | 1   |     | 2   | 1   | 1  | 1   | 12         |
| G                 | Livestock and crop productivity        | 0  | 2 | 1   | 1   | 1   | 2   |     | 1   | 0  | 1   | 9          |
| H                 | Access to transport and infrastructure | 0  | 2 | 1   | 1   | 1   | 2   | 2   |     | 1  | 1   | 11         |
| I                 | Population in-migration                | 0  | 1 | 1   | 0   | 1   | 2   | 1   | 1   |    | 1   | 8          |
| J                 | Conflict                               | 0  | 2 | 2   | 2   | 2   | 2   | 2   | 2   | 1  |     | 15         |
| Passive Sum       |  | 1  | 1 | 13  | 9   | 10  | 18  | 16  | 11  | 7  | 13  |            |
| Product (PS X AS) |  | 12 | 6 | 182 | 135 | 130 | 216 | 144 | 121 | 56 | 195 |            |

**Figure 21. Influence Matrix / ASAL region**

In the scenario workshop in Ethiopia, the facilitators used a Microsoft Excel® spreadsheet to visualise the assessment results during the plenary discussion.

Source: own presentation

|                                       | A  | B   | C  | D   | E   | F   | G   | H   | I   | K  | Active Sum (AS) |
|---------------------------------------|----|-----|----|-----|-----|-----|-----|-----|-----|----|-----------------|
| A Access to water                     | X  | 1   | 2  | 0   | 0   | 0   | 0   | 1   | 2   | 2  | 8               |
| B Access to energy                    | 1  | X   | 2  | 2   | 1   | 1   | 2   | 1   | 2   | 2  | 14              |
| C Prices of agricultural products     | 1  | 1   | X  | 2   | 1   | 0   | 1   | 1   | 2   | 1  | 10              |
| D Access to agricultural inputs       | 0  | 0   | 2  | X   | 0   | 2   | 1   | 2   | 2   | 2  | 11              |
| E Access to financial services        | 2  | 2   | 0  | 2   | X   | 1   | 1   | 2   | 2   | 2  | 14              |
| F Practical knowledge and skills      | 2  | 1   | 1  | 1   | 2   | X   | 2   | 2   | 2   | 2  | 15              |
| G Health status                       | 1  | 1   | 0  | 1   | 1   | 2   | X   | 2   | 1   | 2  | 11              |
| H Youth empowerment                   | 1  | 1   | 0  | 2   | 2   | 2   | 2   | X   | 2   | 1  | 13              |
| I Sustainability of natural resources | 2  | 2   | 1  | 1   | 0   | 1   | 2   | 2   | X   | 2  | 13              |
| K Smallholders' productivity          | 0  | 0   | 0  | 0   | 1   | 0   | 0   | 1   | 2   | X  | 4               |
| Passive Sum (PS)                      | 10 | 9   | 8  | 11  | 8   | 9   | 11  | 14  | 17  | 16 |                 |
| AS x PS                               | 80 | 126 | 80 | 121 | 112 | 135 | 121 | 182 | 221 | 64 |                 |






**Figure 22. Original Influence Matrix / Zambia**





To provide the example of an original matrix, the result of the assessment of mutual influences of the factors by the participants of the scenario workshop in Zambia revealed that 'Practical Knowledge and Skills', 'Access to Financial Services' and 'Access to Energy' have the highest degrees of influence on other factors (active sum) and that 'Sustainability of Natural Resources' and 'Smallholders' Productivity' are most sensitive to other factors (passive sum). 'Sustainability of Natural Resources' and 'Youth Empowerment' have the highest product of active and passive sums.

Source: SLE

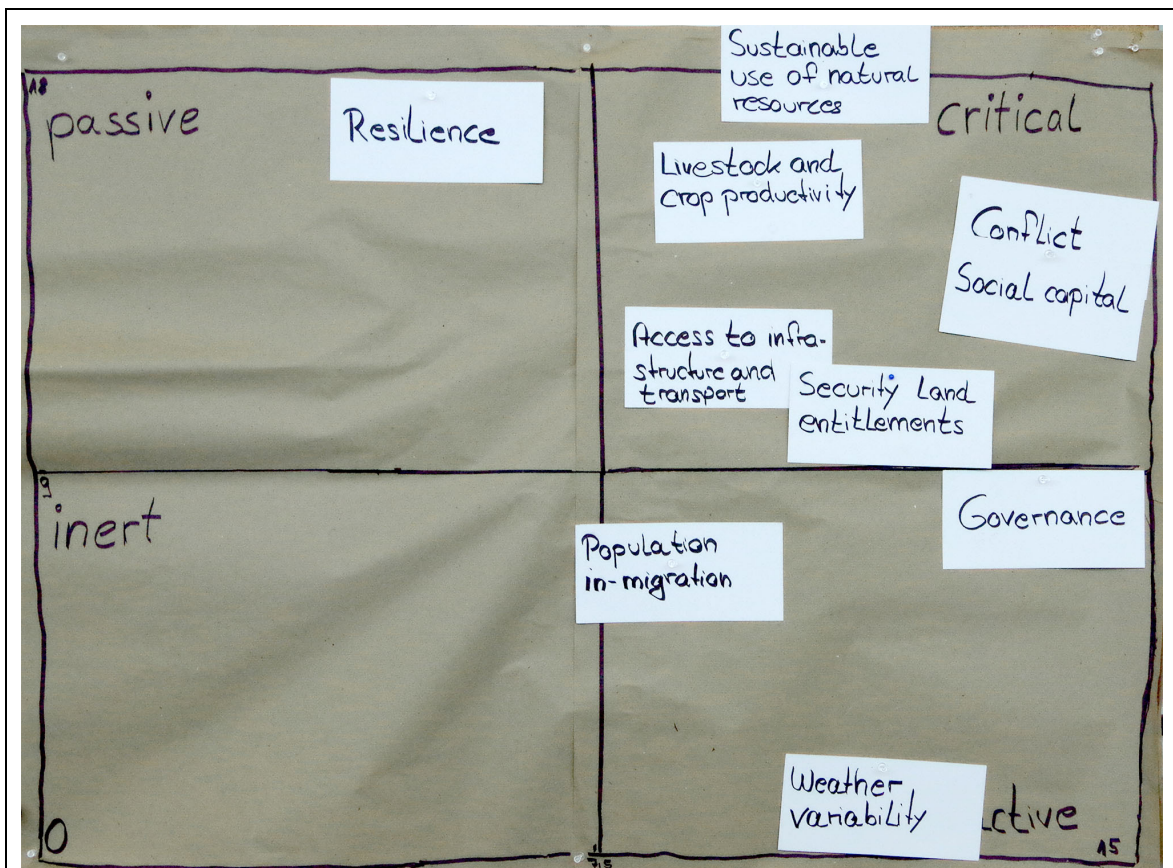
## STEP 8: Analysing the functional character of the factors



|                          |   |   |
|--------------------------|---|---|
| <b>Result</b>            |    | A visualised diagram of all key factors determining rural transformation is developed, illustrating the functional character of the factors in terms of their relative power of influence and the degree of their influenceability. All participants have discussed the result and checked it for plausibility.   |
| <b>Method</b>            |    | <p>➡ <b>Axis Diagram</b></p> <p>Produce the following matrix (here assuming a total number of 8 factors, a highest passive score of 18 and a highest active score of 20 from the Influence Matrix in STEP 7):</p> <div><div>18</div><div><div>Passive</div><div><div>B</div><div>E</div></div><div><div>Critical</div><div><div>D</div><div>F</div><div>A</div></div></div></div><div><div>9</div><div><div>Inert</div><div><div>H</div></div><div><div>Active</div><div><div>G</div><div>C</div></div></div></div><div><div>0</div><div>5</div><div>10</div><div>15</div><div>20</div></div></div></div>   |
| <b>Time</b>              |  | 45-60 minutes   |
| <b>Guiding questions</b> |  | <p>➡ Do the positions of the factors in the system seem plausible? Is there anything surprising, and if so why?</p> <p>➡ What do the functional characters of the factors mean in view of strategies to influence rural transformation?</p>   |
| <b>Hints</b>             |  | <p>➡ Prepare the matrix. Place the factors correctly, identifying the highest scores on each axis (passive and active sums, respectively), and use intercepts on the axes. Use the same letters and short descriptions as used in the Influence Matrix (STEP 7).</p> <p>➡ Explain the meanings of the functional characters:</p> <ul style="list-style-type: none"><li>▪ <b>Passive</b> factors are highly influenceable without having much influence; if we want them to become more stable and autonomous within the system, we need to change the influences other factors have on them.</li><li>▪ <b>Critical</b> factors have much influence and are highly influenceable, hence move the system most; when changing them, they</li></ul> |

|                       |   |  |
|-----------------------|---|--|
|                       |   | <p>will exert a lot of effects on rural transformation but we need to carefully assess the feedback loops.</p> <ul style="list-style-type: none"> <li>▪ <b>Inert</b> factors are hardly influenceable and do not have much influence; they can help to calm down or buffer the system; we may ignore them but have to be aware that they can also tip over.</li> <li>▪ <b>Active</b> factors have much influence but are hardly influenceable; if we can change them in a desired way, they will exert a lot of positive effects on rural transformation, with little repercussions on the factor itself; however, if their influence is negative and we cannot change them, we need to develop strategies to reduce their influence.</li> </ul> <p>➔ Have the participants discuss all factors and their positions, as well as consequences for strategic considerations to influence rural transformation.</p> |
| <b>Team</b>           |    | <p>➔ 1 facilitator</p> <p>➔ 1-2 documenters (of the discussion)</p>  |
| <b>Material</b>       |   | <p>➔ 1 pin board</p> <p>➔ 8-12 cards (depending on the number of factors)</p> <p>➔ 1 flipchart paper</p> <p>➔ 1 camera (to document the result)</p>  |
| <b>To be prepared</b> |  | <p>➔ Pin board with the Axis Diagram on brown paper</p> <p>➔ Flipchart paper with brief explanations of the functional characters</p>  |
| <b>Documentation</b>  |  | <p>➔ Note all comments and dissents regarding the functional characters of the factors and strategic consequences.</p> <p>➔ Photograph the result of the exercise.</p>   |






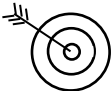




**Figure 23. Original Axis Diagram / ASAL region**





To provide the example of an original diagram, in the scenario workshop in Ethiopia, 'Sustainable Use of Natural Resources' with the highest passive score (18) and 'Governance' (people's participation in decisions that affect their interests) with the highest active score (15) determined the axis edges. The diagram revealed that 'Sustainable Use of Natural Resources', '(scale and intensity of) Conflict' and 'Social Capital' (ability to act collectively and to cooperate on the basis of reciprocity, social safety nets, and trust) are the most 'critical' factors, which move the system of factors determining rural transformation in the region most. 'Resilience' (coping capabilities to resist external shocks) turned out to be a rather 'passive' factor that is influenced by many other factors, whereas 'Population in-migration' (number of immigrants to pastoral areas) is a quite 'inert' factor. 'Governance' and 'Weather variability' (uncertainty of weather patterns) turned out to be 'active' factors (the latter considered uninfluenceable).

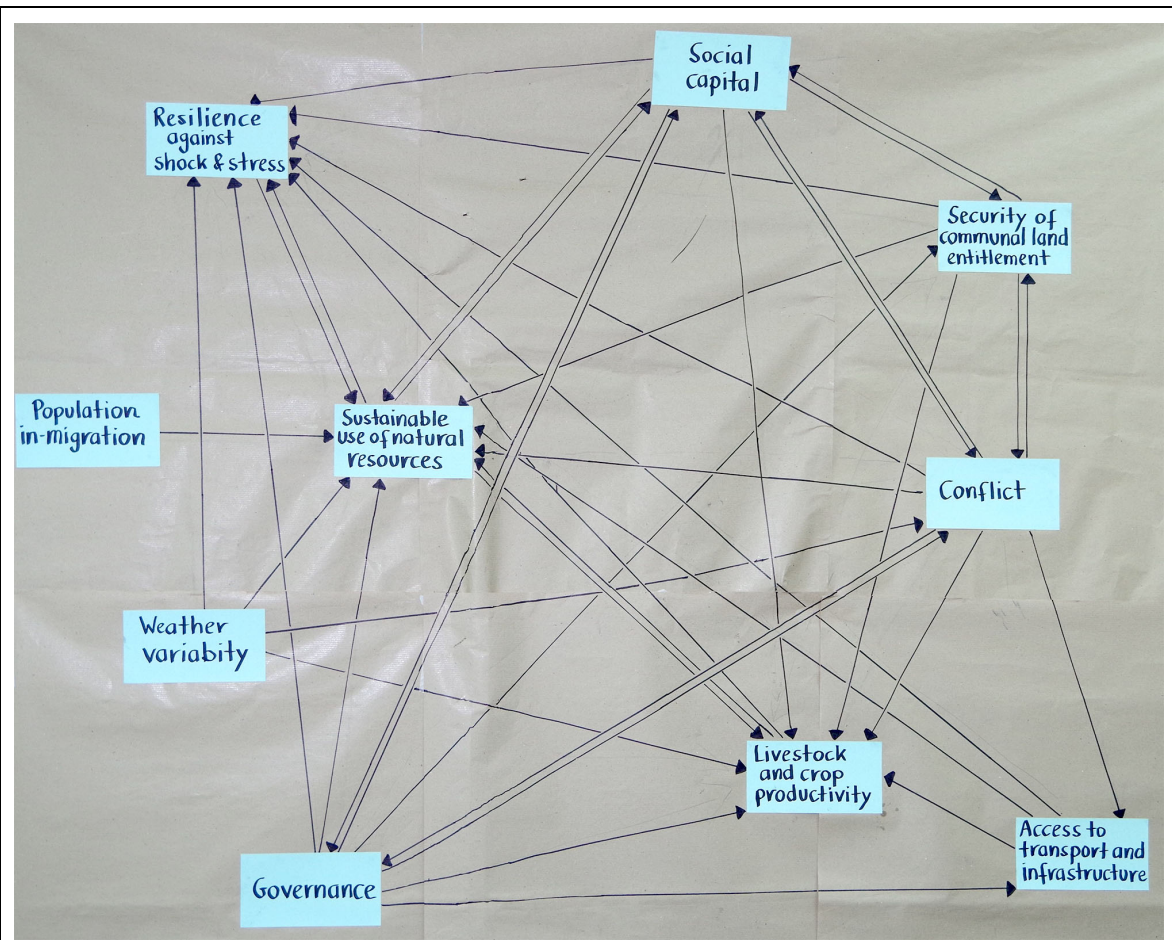
Source: SLE





| STEP 9: Analysing pathways and strengths of interdependencies  |  |
|---|--|
| <b>Result</b>    | A visualised system of interdependencies of all key factors determining rural transformation is developed, illustrating degrees and directions of influence. All participants have discussed the system and checked it for plausibility and coherence.   |
| <b>Methods</b>   | <ul style="list-style-type: none"> <li>➡ Interdependency Diagram</li> <li>➡ Narration and Plausibility Check</li> </ul>  |
| <b>Time</b>    | 45-60 minutes  |
| <b>Guiding questions</b>   | <ul style="list-style-type: none"> <li>➡ What does the 'system' of factors determining rural transformation look like? What is surprising? And why?</li> <li>➡ Are the pathways and strengths of influences plausible, what needs to be checked/discussed again?</li> <li>➡ Which subsystems and feedback loops present themselves?</li> </ul>   |
| <b>Hints</b>    | <ul style="list-style-type: none"> <li>➡ Draw the Interdependency Diagram: <ul style="list-style-type: none"> <li>▪ Place the factors on a big sheet of paper, using the same letters and short descriptions as used in the Influence Matrix (STEP 7). Begin in the centre with the two factors with the highest product (AS x PS). Continue with placing the other factors on the sheet.</li> <li>▪ Then draw all strong influences (score 2) between factors in rather thin straight lines with thick arrowheads indicating the direction of influence. Draw two arrows in case of mutual influence.</li> <li>▪ Draft the drawing on an A4 paper before transferring it on the big sheet; the challenge is to arrange all factors in a way that straight lines can be drawn between them!</li> <li>▪ Prepare the visualisation during a longer break (or in the evening) and check carefully whether it is entirely coherent with the results of the Influence Matrix (STEP 7).</li> </ul> </li> <li>➡ Ask a volunteer participant to 'walk' through the diagram (if nobody volunteers at first, the facilitator can take an initial walk through the diagram): Starting with one factor (e.g. factor B) and using the forefinger, narrate how a change of the factor directly influences other factors, what indirect effects this will have on other factors, and how this will retroact on factor B. Use examples / reasons given when these influences were discussed in STEP 7 to underpin the story. Together with the participants, assess the plausibility of the story. If the validity is questioned, go back to the Influence Matrix (STEP 7) and review the respective scoring.</li> </ul> |

|                       |   |  |
|-----------------------|---|--|
|                       |   | <ul style="list-style-type: none"> <li>➔ Continue walking through the diagram with other factors as starting points. Should the diagram reveal sub-systems of mutual influences, narrate those as well.</li> <li>➔ Beware that the arrows indicate direct strong influences, which can either be positive (e.g. strengthening or accelerating) or negative (e.g. weakening or curbing).</li> <li>➔ Explain that the diagram – for reasons of simplicity and clarity – does not show minor influences (score 1). The description of these influences will be part of developing scenarios through changes of factors in STEP 10.</li> </ul> |
| <b>Team</b>           |    | <ul style="list-style-type: none"> <li>➔ 1 facilitator</li> <li>➔ 1-2 documenters (of the discussion)</li> </ul>   |
| <b>Material</b>       |    | <ul style="list-style-type: none"> <li>➔ 1 pin board</li> <li>➔ 8-12 cards (depending on the number of factors)</li> <li>➔ 1 flipchart paper</li> <li>➔ 1 camera (to document the result)</li> </ul>   |
| <b>To be prepared</b> |   | <ul style="list-style-type: none"> <li>➔ Pin board with the Axis Diagram on brown paper</li> <li>➔ Flipchart paper with brief explanations of the functional characters</li> </ul>   |
| <b>Documentation</b>  |  | <ul style="list-style-type: none"> <li>➔ Note all comments and dissents regarding the functional characters of the factors and strategic consequences.</li> <li>➔ Photograph the result of the exercise.</li> </ul>  |



**Figure 24. Original Interdependency Diagram / ASAL region**






To provide the example of an original diagram, the visualisation of interdependencies in the scenario workshop in Ethiopia revealed strong sub-systems (triangles) of mutual influence between the factors 'Governance', 'Social Capital' and 'Conflict', and between the latter two factors and 'Security of Communal Land Entitlement'. It also showed that 'Sustainable Use of Natural Resources' is strongly influenced by all other factors, similar to 'Resilience against Shocks and Stress'.





Source: SLE



## STEP 10: Developing scenarios through changes of factors



| Result                                |    | <p>The participants have developed scenarios through changes of factors that describe</p> <ul style="list-style-type: none"><li>the desired change (with a view to work towards a socially inclusive and environmentally sustainable rural transformation),</li><li>important effects in the system, i.e. on other factors,</li><li>(medium to long-term) positive social and environmental impact of the factor change,</li><li>the key forces (actors, institutions, policies) behind the factor, and</li><li>suitable strategic measures to influence these forces and hence the dynamics and direction of change.</li></ul>  |                                       |                                 |                           |                              |                             |                  |                  |   |              |                 |                  |              |                 |
|---------------------------------------|---|--|---------------------------------------|---------------------------------|---------------------------|------------------------------|-----------------------------|------------------|------------------|---|--------------|-----------------|------------------|--------------|-----------------|
| Method                                |    | <p>➡ Scenario development</p> <p>For each factor, produce a matrix to document the scenario:</p> <table><tr><th>Positive social and ecological impact</th><th>Important effects in the system</th><th>Factor and desired change</th><th>Key forces behind the factor</th><th>Suitable strategic measures</th></tr><tr><td rowspan="2">Insert narration</td><td>Insert narration</td><td rowspan="2">Insert factor and desired factor change</td><td>Insert force</td><td>Insert measures</td></tr><tr><td>Insert narration</td><td>Insert force</td><td>Insert measures</td></tr></table>  | Positive social and ecological impact | Important effects in the system | Factor and desired change | Key forces behind the factor | Suitable strategic measures | Insert narration | Insert narration | Insert factor and desired factor change | Insert force | Insert measures | Insert narration | Insert force | Insert measures |
| Positive social and ecological impact | Important effects in the system   | Factor and desired change  | Key forces behind the factor          | Suitable strategic measures     |                           |                              |                             |                  |                  |   |              |                 |                  |              |                 |
| Insert narration                      | Insert narration  | Insert factor and desired factor change  | Insert force                          | Insert measures                 |                           |                              |                             |                  |                  |   |              |                 |                  |              |                 |
|                                       | Insert narration  |  | Insert force                          | Insert measures                 |                           |                              |                             |                  |                  |   |              |                 |                  |              |                 |
| Time                                  |  | <p>270-360 minutes (depending on the number of factors and working groups)</p> <ul style="list-style-type: none"><li>180-270 minutes for working groups (90 minutes per factor, assuming 3 working groups)</li><li>90 minutes for presentation and discussion</li></ul>  |                                       |                                 |                           |                              |                             |                  |                  |   |              |                 |                  |              |                 |
| Guiding questions                     |  | <ul style="list-style-type: none"><li>➡ In which direction do the factors have to change to contribute to a socially inclusive and environmentally sustainable rural transformation?</li><li>➡ What effects will these changes trigger in the identified system of factors that determine rural transformation?</li><li>➡ What impact can be expected with a view to social inclusiveness and ecological sustainability of rural transformation?</li><li>➡ What are the key forces (actors, regimes, institutions, policies) behind the factors that foster or hamper their change?</li><li>➡ What are the required strategic measures (considering the identified key forces behind the factors) to induce this change?</li></ul> |                                       |                                 |                           |                              |                             |                  |                  |   |              |                 |                  |              |                 |
| Hints                                 |  | <ul style="list-style-type: none"><li>➡ Facilitate a selection of factors for which systemic scenarios through changes of factors should be developed. Give priority to factors from the 'critical' quadrant in the Axis Diagram (STEP 8),</li></ul>   |                                       |                                 |                           |                              |                             |                  |                  |   |              |                 |                  |              |                 |

|   |   |
|---|---|
|   | <p>but also consider including factors from the 'active' and 'passive' quadrants that have a position close to the aforementioned quadrant. Form groups to work on 2-3 scenarios each.</p> <ul style="list-style-type: none"> <li>➔ To identify the desired change of the factor, also refer back to the described variations of factors (STEP 5).</li> <li>➔ Begin the scenario development with the question: <b>What effects will the desired change trigger in the system of factors, and under which conditions?</b> Use the Interdependency Diagram (STEP 9) as a starting point.</li> <li>➔ Continue by asking: <b>What positive social and environmental impact of the change of the factor and the effects in the system can be expected, and under which conditions?</b></li> <li>➔ The 'conditions' can refer to: <ul style="list-style-type: none"> <li>▪ important factors that did not enter the analysis of interdependencies;</li> <li>▪ factors within the system that influence the factor in question;</li> <li>▪ any other kind of conditionality for a socially inclusive and environmentally sustainable (optimistic) scenario to come true.</li> </ul> </li> <li>➔ Check briefly whether the desired change of the factor can also cause undesirable social or environmental effects.</li> <li>➔ Encourage the participants to formulate narratives rather than merely statements.</li> <li>➔ To identify key forces, think of actors, institutions, regimes, and policies that definitely need to be addressed to change the factor in the desired way; describe and record <i>how</i> they influence the factor.</li> <li>➔ When identifying suitable strategic measures to address the key forces, think also of who would have to implement these measures (responsibilities), if possible.</li> <li>➔ Facilitate a presentation of working group results in plenary.</li> </ul> |
| <b>Team</b>            | <ul style="list-style-type: none"> <li>➔ 1 facilitator (of plenary session)</li> <li>➔ 2-3 facilitators (of working groups)</li> <li>➔ 1-2 documenters (of the plenary discussion)</li> </ul>   |
| <b>Material</b>        | <ul style="list-style-type: none"> <li>➔ 4-5 pin boards (with brown paper sheets)</li> <li>➔ 1 camera (to document the result)</li> </ul>   |
| <b>To be prepared</b>  | <ul style="list-style-type: none"> <li>➔ Brown paper sheets with the matrix</li> </ul>  |
| <b>Documentation</b>   | <ul style="list-style-type: none"> <li>➔ Note all comments, additions and dissents regarding the scenarios.</li> <li>➔ Photograph the result of the exercise.</li> </ul>  |

| Positive impact   | Effects in the system<br>←  | Desired change of factor<br>←  | Key forces<br>←  | Strategic measures<br>←   |
|---|---|--|--|---|
| <ul style="list-style-type: none"> <li>• Better well-being of pastoralists</li> <li>• Ensured peace and trust among pastoral institutions, groups, actors</li> <li>• Stronger sense of ownership</li> </ul> | <ul style="list-style-type: none"> <li>• More sustainable use of natural resources</li> <li>• Increasing livestock and crop productivity, and wildlife</li> <li>• Minimised recurring conflicts and tensions among communities</li> <li>• Improved resilience to shocks</li> <li>• Enhanced participation of elders strengthens social capital</li> </ul> | <p>Factor: Security of communal land entitlement</p> <ul style="list-style-type: none"> <li>➤ Formal recognition of communal land entitlement</li> <li>➤ A more appropriate land use management system recognising mobile corridors (also wildlife)</li> </ul> | <ul style="list-style-type: none"> <li>• Responsible bodies in Government at different levels that provide certificates</li> <li>• NGOs and donor agencies</li> <li>• Customary institutions, including communities</li> </ul> | <ul style="list-style-type: none"> <li>• Formulate required policies and strategies</li> <li>• Pilot projects in pastoral areas</li> <li>• Create an administrative base</li> <li>• Intensify lobbying activities</li> <li>• Facilitate experience sharing</li> <li>• Translate proceedings of experience-sharing consultations into local languages</li> </ul> |

**Figure 25. Scenario through change in security of communal land entitlement**

In the scenario workshop in Ethiopia, the working group on 'Security of Communal Land Entitlement' defined the desired change of this factor, identified effects in the system and positive impact, key forces behind the factor and required strategic measures.

Source: own presentation

| Positive impact   | Effects in the system<br>←   | Desired change of factor<br>←   | Key forces<br>←  | Strategic measures<br>←   |
|---|--|---|--|---|
| <ul style="list-style-type: none"> <li>• Improved natural resource conservation</li> <li>• Harmony between different parties</li> <li>• More peace, security, stability</li> <li>• Enhanced respect for each other's values</li> <li>• Opened ways for alternative resource uses</li> </ul> | <ul style="list-style-type: none"> <li>• Conflicting parties can better deal with shocks and stress (due to joint action)</li> <li>• Improved social capital and customary institutions</li> <li>• Less competition and better share of natural resources</li> </ul> | <p>Factor: Level of conflict</p> <ul style="list-style-type: none"> <li>➤ Reduced conflicts and tensions at inter- and intraregional and community levels</li> <li>➤ Non-violent and strengthened customary conflict resolution mechanisms</li> </ul> | <p>All actors in conflicts:</p> <p>Government bodies, the House of Federations, the Security and Administration Bureau, military police, NGOs, donor agencies that implement projects, institutions and their leaders, brokers, human traffickers, investors</p> | <ul style="list-style-type: none"> <li>• Peace building activities, e.g. bringing traditional leaders together in conflicts over livestock theft</li> <li>• Building of local and regional institutions for conflict resolution and peace building</li> <li>• Creation of a specialised organisation or interface with a broader scope to manage conflicts or tensions</li> </ul> |

**Figure 26. Scenario through change in levels of conflict**

In the scenario workshop in Ethiopia, the working group on 'Security of Communal Land Entitlement' defined the desired change of this factor, identified effects in the system and positive impact, key forces behind the factor and required strategic measures.

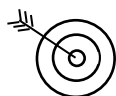
Source: own presentation



## Optional: STEP 11: Developing scenarios through changes of interdependencies



### Result



The participants have developed scenarios through changes of interdependencies that describe

- the desired changes in interdependencies with other factors (with a view to work towards a socially inclusive and sustainable rural transformation),
- suitable strategic measures to influence this change,
- important effects in the system, and
- (medium to long-term) positive social and environmental impact of the changes in interdependencies.

### Method



#### ➤ Scenario development

For each factor, produce a matrix to document the scenario\*:

| <i><b>Factor</b></i>          | <i><b>Desired changes in interdependencies</b></i>                      | <i><b>Suitable strategic measures</b></i>  | <i><b>Important effects in the system</b></i>  | <i><b>Positive social and ecological impact</b></i>   |
|-------------------------------|---|--|--|---|
| 'Small-holders' productivity' | Small-holders' productivity is less dependent on 'weather variability'  | Introduction of climate-smart agriculture (drought-resistant crops, mulching etc.)                   | Improved 'access to financial services' as smallholders become more attractive to micro-finance institutions | Widened livelihood opportunities for smallholders<br><br>Increased job opportunities for unskilled and land-less<br><br>Enhanced soil fertility |
|                               | Small-holders' productivity has a stronger influence on 'rural incomes' | Promotion and support of farmers' cooperatives<br><br>Introduction of price stabilisation mechanisms |  |   |

\* As this step has not been carried out in any of the scenario workshops conducted in Benin, Ethiopia and Zambia, the scenario presented here is fictional and serves as an illustration of the method. The assumed factors are put in quotes.





### Time



150-240 minutes (depending on the number of factors and working groups)

- 90-180 minutes for working groups (90 minutes per factor, assuming 3 working groups)
- 60 minutes for presentation and discussion

|                          |   |
|--------------------------|---|
| <b>Guiding questions</b> | <p>Guiding questions to identify strategic measures:</p> <ul style="list-style-type: none"> <li>➔ How does the interdependency have to change to contribute to a socially inclusive and environmentally sustainable rural transformation?</li> <li>➔ What are the required strategic measures to induce this change?</li> </ul> <p>Guiding questions to develop a scenario:</p> <ul style="list-style-type: none"> <li>➔ What effects will this change trigger in the identified system of factors that determine rural transformation?</li> <li>➔ What impact can be expected with a view to social inclusiveness and environmental sustainability of rural transformation?</li> </ul>   |
| <b>Hints</b>             | <ul style="list-style-type: none"> <li>➔ Facilitate a selection of factors for which systemic scenarios through changes of interdependencies should be developed. Give priority to factors             <ul style="list-style-type: none"> <li>▪ from the 'active' quadrant in the Axis Diagram (STEP 8) that have a negative influence on rural transformation but can hardly be changed, so that their influence needs to be addressed strategically,</li> <li>▪ from the 'passive' quadrant in the Axis Diagram (STEP 8) that are either negatively affected by other factors, so that their influenceability needs to be addressed strategically in order for them to become more autonomous and stable within the system; or that exert little (positive) influence on the system, so that their strengths of influence needs to be addressed strategically.</li> </ul> </li> <li>➔ Form groups to work on 1-2 scenarios each.</li> <li>➔ To identify the desired change of interdependencies, refer back to the Influence Matrix (STEP 7), the Axis Diagram (STEP 8), and the Interdependency Diagram (STEP 9). Technically, the change is expressed             <ul style="list-style-type: none"> <li>▪ by a shift from 2 to 1 or 0 indicating reduced dependency, or from 0 or 1 to 2 indicating a stronger influence in the Influence Matrix;</li> <li>▪ by a horizontal and/or vertical shift in the position of the factor in the Axis Diagram;</li> <li>▪ by the deletion or addition of arrows in the Interdependency Diagram.</li> </ul> </li> <li>➔ When identifying suitable strategic measures to address the interdependency, think also of who would have to implement these measures (responsibilities), if possible.</li> <li>➔ Check briefly whether the desired change of interdependency can also cause undesirable social or environmental effects.</li> <li>➔ Facilitate a presentation of working group results in plenary.</li> </ul> |

|   |   |
|---|---|
| <b>Team</b>            | <ul style="list-style-type: none"> <li>➡ 1 facilitator (of plenary session)</li> <li>➡ 2-3 facilitators (of working groups)</li> <li>➡ 1-2 documenters (of the plenary discussion)</li> </ul> |
| <b>Material</b>        | <ul style="list-style-type: none"> <li>➡ 3-4 pin boards (with brown paper sheets)</li> <li>➡ 1 camera (to document the result)</li> </ul>   |
| <b>To be prepared</b>  | <ul style="list-style-type: none"> <li>➡ Brown paper sheets with the matrix</li> </ul>  |
| <b>Documentation</b>   | <ul style="list-style-type: none"> <li>➡ Note all comments, additions and dissents regarding the scenarios.</li> <li>➡ Photograph the result of the exercise.</li> </ul>                      |



## 4 Evaluation of the Applied Scenario Technique

The scenario workshops led to a thorough understanding of rural transformation trends, important determining factors and their interplay, and key forces behind them that need to be addressed to tread a socially inclusive and environmentally sustainable transformation path in the case countries / region. Workshop participants highly appreciated the systematic methodology and the participatory character of the workshops that allowed for intense mutual exchange of knowledge and views.

However, the complexity of the research topic, the character of the scenario technique, and the ambitiousness of the methodology are challenges the facilitating team has to cope with, as well as limits it has to accept.

### 4.1 Complexity of the research topic

Even though the applied scenario technique has been used before to develop scenarios on issues such as 'quality of life' and 'peaceful coexistence', its application for the research topic 'socially inclusive and environmentally sustainable rural transformation' presents a challenge to scenario workshop facilitators and participants due to its particular complexity:

- Firstly, rural transformation involves various key features, each with several sub-features. Consequently, factors determining rural transformation are at a highly aggregated level (e.g. access to energy, agricultural productivity) and do not allow for a more in-depth analysis of a certain feature, e.g. identifying specific push and pull factors for rural-urban migration.
- Secondly, social inclusiveness and environmental sustainability constitute two goal dimensions, which can also be partly conflicting. The global challenge to integrate these two in economic development ('social-environmental transformation') translates into the challenge to formulate scenarios that satisfy both.
- Thirdly, many factors influencing rural transformation are driven not only by local and national forces, but also by international / global actors and policies. This limits the range of options for development cooperation organisations and their national and local partners to shape rural transformation in a socially inclusive and environmentally sustainable way.

In addition, rural transformation as defined by the facilitating team is a factor-dependent process of change in the way people in rural areas live and act economically and not a strategic process of improving the quality of life and economic well-being of people living in rural areas. Given that the international development agenda centres on ending poverty and hunger and achieving the Sustainable Development Goals, it is a challenge throughout the scenario workshop to lead the participants away from well-trodden paths of development planning to a path of shaping transformation processes.

## 4.2 Character of the scenario technique

As discussed in Chapter 1.4, the applied scenario technique is essentially qualitative and participatory in nature, with the following main consequences:

- There is little room during the workshop for 'data collection', e.g. about recent macro-trends or the quantification of factors. This can only be done by complementary desk or field surveys. The facilitating team employed a method of 'Underpinning, Sharpening and Enhancement' (USE, see outline in Annex 2) to achieve this and to also fine tune the strategic recommendations from the workshop.
- The quality of scenarios depends strongly on the composition and background and expertise of the participants. Therefore, participant selection is crucial (see Chapter 3.1). In addition to the scenario workshop, complementary individual expert interviews or focus group discussions can provide further input for the formulation of scenarios.
- The identification of factors determining rural transformation in STEP 2 may not yield certain factors the facilitating team had identified beforehand through desk studies (e.g. 'urban-bias of trade policy'). The same holds for the filtering (selection) of factors in STEP 4, which may reduce the input of the workshop to certain research questions the facilitating team has. Such deficits, however, can be compensated for with complementary surveys.
- The results of participatory ranking exercises, particularly the weighting of factors in STEP 4, depend on the (combined) individual assessments of the participants and not on debate and arguments. It is important, therefore, to provide enough room for joint reflection of the results of such exercises by the participants before moving on to the next step.

## 4.3 Ambitiousness of the methodology

The applied technique is much much more ambitious than 'traditional' explorative scenario techniques that work with only two or three factors and their variations and go without the analysis of interdependencies and strategic considerations (see Chapter 1.3):

- It requires a team of 4-5 persons to properly facilitate and document the workshop process and results.
- Up to five full days are needed to implement the eleven methodological steps. In practice, this constitutes a huge challenge, as many participants find it impossible to be absent from their duty stations for such a long time. In fact, the scenario workshops in Zambia and Benin had to close half a day earlier and the workshop in Ethiopia one and a half days earlier than planned. As a consequence, some steps – particularly STEP 10 – had to be cut short and STEP 11 could not be implemented in any of the three workshops. A possible solution is to hold two separate workshops, one for STEP 1 to STEP 6 (developing linear scenarios) and the other for STEP 7 to STEP 11 (developing systemic scenarios). The facilitating team could use the time between these two workshops to reflect on the intermediary results, to collect additional data and information, e.g. through expert interviews, and to take a carefully considered de-

cision whether the foreseeable results of systemic scenario building is worth the considerable effort of a 1.5-3-day workshop.

- The applied scenario technique needs excellent facilitation to produce convincing quality results. In particular, the identification and definition of factors (STEP 3), their weighting and filtering (STEP 4), and the assessment of their mutual influences (STEP 7) require special facilitation skills to ensure selectivity and level equality of factors, facilitate solid assessments and reflected group decisions, and interpret the results together with the participants.





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# Annex

## Annex 1. Scenario Workshop Programme

|  |  |
|--|--|
| <b>Workshop Title:</b><br><b>Building Scenarios of Rural Transformation in the ASAL Region of Ethiopia</b> |  |
| <b>Participants</b>  | Representatives from the Government of Ethiopia and from Research Institutions, Private Companies and Non-Governmental Organisations working in Ethiopia   |
| <b>Time</b>  | Monday, February 15, to Friday, February 19, 2016  |
| <b>Facilitator</b>   | Christian Berg, comit GmbH Berlin<br>Co-Facilitation by Dr. Gabriele Beckmann, SLE/Humboldt-Universität zu Berlin  |
| <b>Objectives</b>  | The participants have built scenarios of rural transformation in ASAL regions of Ethiopia until the year 2030 and developed strategic recommendations on how to work towards a socially inclusive and environmentally sustainable rural transformation |

### Programme of activities:

| Time                            | Topic  |
|---------------------------------|--|
| <b>PART A of the Workshop</b>   |  |
| <b>Day 1 – 15 February 2016</b> |  |
| 08:30 – 09:00                   | Registration of participants   |
| 09:00 – 09:15                   | <b>STEP 1: Opening of the workshop and introduction to the research topic</b>                                  |
| 09:15 – 10:00                   | Introduction of participants   |
| 10:00 – 10:15                   | Introduction of the workshop objectives and programme, logistics   |
| 10:15 – 10:45                   | Presentation of research concepts  |
| 10:45 – 11:00                   | <i>Tea / coffee break</i>  |
| 11:00 – 11:15                   | <b>ctd.</b> Introduction to qualitative scenario building  |
| 11:15 – 12:30                   | <b>STEP 2: Identifying major macro-trends and directions of change in rural transformation in ASAL regions</b> |
| 12:30 – 13:30                   | <i>Lunch break</i>   |
| 13:30 – 14:30                   | Presentation of results STEP 2   |
| 14:30 – 15:15                   | <b>STEP 3: Identification of factors determining rural transformation in ASAL regions</b>                      |
| 15:15 – 15:45                   | <i>Tea / coffee break</i>  |
| 15:45 – 17:45                   | <b>ctd.:</b> Definition of factors determining rural transformation in ASAL regions                            |
| 17:45 – 18:00                   | Feedback, end of the 1 <sup>st</sup> day   |

| Day 2 – 16 February 2016 |  |
|--------------------------|--|
| 08:30 – 08:45            | Registration   |
| 08:45 – 09:00            | Recap of the results of day 1  |
| 09:00 – 10:30            | <b>STEP 4: Weighting of factors determining rural transformation in ASAL regions</b>                     |
| 10:30 – 11:00            | <i>Tea / coffee break</i>  |
| 11:00 – 11:45            | <b>ctd.:</b> Filtering of factors determining rural transformation in ASAL regions                       |
| 11:45 – 12:30            | <b>STEP 5: Description of variations of key factors determining rural transformation in ASAL regions</b> |
| 12:30 – 13:30            | <i>Lunch break / Group photo</i>   |
| 13:30 – 14:15            | <b>ctd.:</b> Description of variations of the factors determining rural transformation in ASAL regions   |
| 14:15 – 15:30            | Presentation of results of STEP 5  |
| 15:30 – 15:45            | <i>Tea / coffee break</i>  |
| 15:45 – 17:15            | <b>STEP 6: Developing narrative linear scenarios (most probable and optimistic)</b>                      |
| 17:15 – 17:50            | Reflection of the workshop results   |
| 17:50 – 18:00            | Feedback, end of the 2 <sup>nd</sup> day / Part A of the workshop  |

| Time                            | Topic   |
|---------------------------------|---|
| <b>PART B of the Workshop</b>   |   |
| <b>Day 3 – 17 February 2016</b> |   |
| 08:30 – 08:45                   | Registration  |
| 08:45 – 09:00                   | Recap of the results of Part A of the workshop, introduction of the remaining programme (Part B)                |
| 09:00 – 10:45                   | <b>STEP 7: Assessment of mutual influences of the factors determining rural transformation in ASAL regions</b>  |
| 10:45 – 11:00                   | <i>Tea / coffee break</i>   |
| 11:00 – 12:30                   | <b>ctd.:</b> Assessment of mutual influences of the factors determining rural transformation in ASAL regions    |
| 12:30 – 13:30                   | <i>Lunch break</i>  |
| 13:30 – 14:15                   | <b>ctd.:</b> Assessment of mutual influences of the factors determining rural transformation in ASAL regions    |
| 14:15 – 15:00                   | Reviewing the mutual influences of key factors determining rural transformation in ASAL regions                 |
| 15:00 – 15:30                   | <i>Tea / coffee break</i>   |
| 15:30 – 16:50                   | <b>STEP 8: Analysis of the functional character of factors determining rural transformation in ASAL regions</b> |
| 16:50 – 17:00                   | Feedback, end of the 3 <sup>rd</sup> day  |

| Time                            | Topic  |
|---------------------------------|--|
| <b>Day 4 – 18 February 2016</b> |  |
| 08:30 – 08:45                   | Registration   |
| 08:45 – 09:00                   | Recap of the results of day 3  |
| 09:00 – 09:45                   | <b>STEP 9: Analysis of pathways and interdependencies between the factors determining rural transformation in ASAL regions</b> |
| 09:45 – 10:45                   | <b>ctd.:</b> Plausibility check – walk through the system  |
| 10:45 – 11:00                   | <i>Tea / coffee break</i>  |
| 11:00 – 12:30                   | <b>STEP 10: Development of scenarios through changes of factors</b>  |
| 12:30 – 13:30                   | <i>Lunch break</i>   |
| 13:30 – 15:00                   | <b>ctd.:</b> Development of scenarios through changes of factors   |
| 15:00 – 15:15                   | <i>Tea / coffee break</i>  |
| 15:30 – 17:00                   | <b>ctd.:</b> Development of scenarios through changes of factors   |
| 17:00 – 17:50                   | Presentation of preliminary results and discussion   |
| 17:50 – 18:00                   | Feedback, end of the 4 <sup>th</sup> day   |
| <b>Day 5 – 19 February 2016</b> |  |
| 08:30 – 08:45                   | Registration   |
| 08:45 – 09:00                   | Recap of the results of day 4  |
| 09:00 – 10:45                   | <b>ctd.:</b> Development of scenarios through changes of factors   |
| 10:45 – 11:00                   | <i>Tea / coffee break</i>  |
| 11:00 – 12:30                   | <b>STEP 11: Development of scenarios through changes of interdependencies</b>  |
| 12:30 – 13:30                   | <i>Lunch break</i>   |
| 13:30 – 15:00                   | <b>ctd.:</b> Presentation of results and discussion  |
| 15:00 – 15:15                   | <i>Tea / coffee break</i>  |
| 15:30 – 16:30                   | Final Discussion on developed scenarios  |
| 16:30 – 17:00                   | Feedback, closure of scenario workshop   |

## **Annex 2. Underpinning, Sharpening and Enhancement (USE) of strategic recommendations from the scenario workshops**

As the main output, the scenario workshops produce a set of reasoned strategic recommendations on how to work towards a socially inclusive and environmentally sustainable rural transformation in the case country/region. They are based on:

- A description of recent trends in rural transformation in the respective country/region – and their consequences for different societal groups – from the perspective of the workshop participants;
- The identification of important factors determining rural transformation in the case country/region and their possible variations;
- The formulation of probable scenarios of rural transformation ('optimistic', 'realistic', 'pessimistic'), depending on what variations of the factors materialise;
- An analysis of the mutual interdependencies of the identified influencing factors and the key forces (actors, institutions, policies) behind them;
- An assessment of the effects of desirable changes of the factors and changes of interdependencies within the system and their longer-term positive social and environmental impact.

Even though careful selection of workshop participants and good facilitation ensures a spread of perspectives, opinions and values, profound assessments and objectifiable conclusions, the strategic recommendations from the workshops and their underlying assumptions require underpinning, sharpening and enhancement (USE) to make them handy. USE comprises the following tasks:

### 1. Underpinning the strategic recommendations and their underlying assumptions

The guiding question regarding the assessment of recent trends and the current situation of rural transformation in the country/region is whether it sufficiently reflects the reality. If not, there is a need to empirically underpin the assessment by the workshop participants through the collection of data and information by way of, e.g. expert interviews, document studies, reading of maps and satellite photographs, or by using 'classical' tools from the Participatory Rural Appraisal (PRA) toolbox.

It is also necessary to underpin or back the strategic recommendations by recommendations from similar studies (evaluations, strategy documents etc.) on the case country/region.

### 2. Sharpening the strategic recommendations

Taking the backgrounds of the workshop participants – most of them are not from the 'development community', do not have a direct stake in the rural transformation in the country/region, and are not experts on social inclusion and environmental sustainability – as well as the available time in the workshops into account, the strategic recommendations can be expected to be of a rather general nature. Hence, they require sharpening through:

- a) Matching with criteria of social inclusion and environmental sustainability (and their nexus): Recommendations need to meet certain criteria to truly lead to socially inclusive and environmentally sustainable rural transformation when implemented.
- b) Differentiation according to levels and addressees: To become implementable, recommendations need to address the right levels (national, regional, local) and actors and institutions at those levels.
- c) Identification of points of departure: To be practical, recommendations need to relate to existing government policies, donor strategies, and initiatives (by authorities, civil society, business community, etc.) for their implementation.
- d) Consideration of time-frames: To be useful, recommendations require differentiation regarding short- to medium-term and long-term implementation.

Sharpening the strategic recommendations requires expert interviews, rapid institutional assessments and document studies.

### 3. Enhancement of the strategic recommendations

To be useful for the German Federal Ministry of Economic Cooperation and Development (BMZ), the recommendations need enhancement with a view to the possible role of green innovation centres and the need for bilateral and multilateral action. This requires consultations with representatives of German Development Cooperation in the case countries.

In addition, some of the recommendations, developed with a specific case region in mind, may need enhancement if they are to be relevant for the respective country as a whole. This requires consultations with experts at national level.

